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COOPER ORNITHOLOGICAL CLUB

## CONTENTS

Henry Barroilhet Kaeding (with one photo by <i>W. Otto Emerson</i> )	<i>Joseph Mailliard</i>	191
Notes on the Eggs of the North American Limicolae, referring principally to the Accidental Visitors	<i>Herbert Massey</i>	193
Some further Notes on Sierran Field-work (with four photos by <i>Oluf J. Heinemann</i> )	<i>Milton S. Ray</i>	198
Identification by Camera (with two photos by the author)	<i>William Leon Dawson</i>	204
Some Curious Nesting Places of the Allen Hummingbird on the Rancho San Geronimo (with one photo by the author)	<i>Joseph Mailliard</i>	205
The Birds of San Martin Island, Lower California (with six photos by the author)	<i>Howard W. Wright</i>	207
A Mnemonic Device for Color-workers	<i>William Leon Dawson</i>	211
A Practical System of Color Designation	<i>William Leon Dawson</i>	212
Preliminary Report upon the Disease Occurring among the Ducks of the Southern San Joaquin Valley during the Fall of 1913 (with eleven photos by the author and one diagram)	<i>Frank C. Clarke</i>	214
<b>FROM FIELD AND STUDY:</b>		
Two Stragglers on the Oregon Coast	<i>Stanley G. Jewett</i>	226
Nesting of the Band-tailed Pigeon	<i>Wright M. Pierce</i>	227
Late Nesting of Certain Birds in Arizona	<i>Frank C. Willard</i>	227
The Sabine Gull in the Santa Barbara Channel	<i>Howard W. Wright</i>	227
Nesting Notes from San Diego County	<i>Lawrence M. Huey</i>	228
Dry Season Notes	<i>Joseph Mailliard</i>	228
Note on the Guadalupe Caracara	<i>H. S. Swarth</i>	228
Sharp-shinned Hawk Nesting in Arizona	<i>Frank C. Willard</i>	229
Note on the Ashy Petrel	<i>Howard W. Wright</i>	229
Three New Birds from Eastern Oregon	<i>Stanley G. Jewett</i>	229
Spotted Owls in San Diego County	<i>Lawrence M. Huey</i>	229
EDITORIAL NOTES AND NEWS		230
PUBLICATIONS REVIEWED		231
MINUTES OF COOPER CLUB MEETINGS		236
INDEX TO VOLUME XV		238

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### Avifauna Number 9 is now ready for distribution. Avifauna Number 10 is in press,

In the past it has been customary for the management to send all Avifaunas free to members in good standing. This worked nicely enough until we began to print so many that it became a serious drain upon the pocket-books of the few members who were called upon each time for donations.

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# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XV

November-December, 1913

Number 6

HENRY BARROILHET KAEDING

By JOSEPH MAILLIARD

WITH PHOTOGRAPH BY W. OTTO EMERSON

AN ORGANIZATION such as the Cooper Ornithological Club may have many members, but few *workers*, and when the ranks of those who work are thinned the loss is great. While the younger members, and those living at a distance, may have an indefinite feeling of loss when one of these is taken away, it is only the older members who have in mind the Club's earlier struggles for existence who can understand the full meaning of such loss. Only the personal friends of men like Henry Barroilhet Kaeding, whose death occurred in Los Angeles on June 12, 1913, realize what his absence means to us, or fully appreciate the results of the deep interest he showed in Club matters and the amount of work—some of which many of us would call drudgery—cheerfully performed by him to promote the Club's welfare and to extend the knowledge of the wonderful bird-life on this side of the North American continent.

Henry B. Kaeding, or "H. B.", as many of us familiarly addressed him, was born in San Francisco in 1877. He was the son of one of the city's pioneer merchants, "Charlie" Kaeding—a name at one time well known to most lovers of rod and gun on the Pacific Coast. While his more youthful education was acquired in the public schools his natural leaning toward scientific pursuits led him to enter the California School of Mechanical Arts, where he remained for some time. After this, with the exception of a few months with the then (and present) city chemist, he continued his own education persistently and independently.

At what age his love of natural history first asserted itself the writer does not know, but from 1892 to 1896 he was mining and studying in Amador County, California, and it was during this period that he commenced making a study and a collection of the birds of his immediate vicinity. His records of this period, which have been in the writer's possession for some years, show that he first commenced systematically to record the ornithological specimens taken by his brother Charles and himself in the later part of 1894. Through the exchange of some of

these specimens he became acquainted with the late Chester Barlow, and it was on account of the friendship which ensued that he was led to join the Cooper Ornithological Club in 1895.

The Amador County mine not having turned out as well as he had been led to expect, Kaeding accepted an invitation to join A. W. Anthony on a trip to the South Pacific islands. A second trip was made with Mr. Anthony in 1897.



Fig. 52. HENRY B. KAEDING; PHOTOGRAPH TAKEN BY W. OTTO EMERSON ON THE FARALLON ISLANDS IN JUNE, 1903. (See Kaeding's article in *Condor* for September, 1903, pages 121-127.)

On this latter expedition the schooner was wrecked in the nighttime off Magdalena Bay, and the party escaped from the sinking vessel through the breakers in a small boat, saving but few of their possessions and specimens, landing on a desolate beach in scant clothing, with but little if any food, and with a sixty-mile walk in prospect to the nearest point of succor! Much was added to our knowledge of the bird life of some of these islands by the two expeditions made

to them, and several new species and races were discovered and described.

After several ventures in the metallurgical or mining line, maintaining an office in San Francisco with his brother for a while, and also doing some work in Plumas County, California, Kaeding was induced to go out to Korea, as metallurgist, by the Oriental Consolidated Mining Company. There he stayed for three years. After this he spent several years in charge of mining properties on the west coast of Mexico, and finally went to Nicaragua, staying there some two years. It was there that his health became affected, the climate not agreeing with him at all. He returned to the United States for treatment, but it was too late, as his heart had become involved.

On his way back to California he visited Washington, D. C., to meet some of the ornithologists there, with whom he had from time to time been in correspondence; but most unfortunately most of them were away on vacations or out on field duty, much to his regret. Mr. A. B. Howell, of Covina, California, is identified with the preparation of a work upon North American birds, and Mr. Kaeding was to have supplied him with notes that would have greatly enhanced its value.

The accuracy of Kaeding's mind is well exemplified in the "Ten-year Index to the Condor," successfully compiled by him in 1908, and brought to publication early in 1909 as Pacific Coast Avifauna Number 6.

Kaeding was a jovial comrade in the field, never afraid of hard work, a firm supporter of the Cooper Ornithological Club, and was ever dreaming of the time when he would "make his pile" and do all sorts of things for the "C. O. C." Why he should have been taken so early from our midst is one of those things no man may know. We wonder—but we must accept.

#### NOTES ON THE EGGS OF THE NORTH AMERICAN LIMICOLAE, REFERRING PRINCIPALLY TO THE ACCIDENTAL VISITORS

By HERBERT MASSEY, M. B. O. U.

I WAS MUCH interested in Dr. Shufeldt's paper on the North American Limicolae in THE CONDOR for July-August, 1913, and trust that he will find time to give descriptions and plates of the eggs of the rarer Limicolae, especially of those species that figure in the B. O. U. list, of the eggs of which we have few examples in England. Of the European species given by Dr. Shufeldt, and which are almost accidental visitants to America, I think he has been hampered by having too little data to work on; and on this account I venture to enlarge upon what he has already written, thinking that it may interest some of our readers who may wish to know the extreme range of variation in the eggs of this the most interesting group of birds—the Limicolae. These notes are taken from the most extensive private collection of eggs of the Limicolae in England.

**Phalaropus (or Steganopus) tricolor.** Wilson Phalarope.

**Phalaropus fulicarius.** Red (or Gray) Phalarope.

**Phalaropus hyperboreus (or Lobipes lobatus).** Red-necked (or Northern) Phalarope.

As regards the ground color of the eggs of the three Phalaropes, I find those of *P. tricolor* to be the least variable, being mostly different shades of clay color, the pale stone color and the various shades of olive, as in the other two species,

being absent. The surface markings also do not show the same range of color, being chiefly chocolate-brown and brownish-black, while the patterns of the markings from minute specks all over the egg to great blotches are equally as variable as in the other two species. On many of the eggs of *P. fulvicularius* and *P. hyperboreus*, specks and blotches of violet gray are to be found, more especially on those with the stone-colored and light-olive grounds. The bigger blotches on the eggs of all the three species are generally to be found on the large end and sometimes cover the whole of it. The eggs of *P. fulvicularius* and *P. hyperboreus* have little or no gloss, while the eggs of *P. tricolor* are distinctly glossy. I think Dr. Coues is mistaken in saying that the eggs of *P. fulvicularius* cannot be distinguished from those of *P. hyperboreus*. It is true that small eggs of *P. fulvicularius* cannot be distinguished from large eggs of *P. hyperboreus*, but in a large series such as I have before me (19 sets or 76 eggs of the former and 50 sets or 200 eggs of the latter) the difference is easily seen. Measurements: *P. tricolor*, 1.3 x .9 in.; *P. fulvicularius*, 1.25 x .85; *P. hyperboreus*, 1.15 x .82 in. Number of eggs, 4. Eggs pyriform in shape.

**Recurvirostridae.**

I am not able to give any description of the American forms of Stilt and Avocet, but judging from Dr. Shufeldt's figures they must very closely resemble the European forms both in size and color and markings, but would hardly fit in with Dr. Coues' description. The eggs of *Himantopus avocetta* are distinctly larger than those of *Himantopus melanopterus*, and while the markings are very similar on the eggs of both species, and in many cases the ground color also, the eggs of *H. avocetta* appear in a series to have a richer, warmer appearance. Measurements: *H. avocetta*, 2 x 1.5 in.; *H. melanopterus*, 1.7 x 1.25. Number of eggs nearly always 4 in *H. avocetta*, and 3 to 4 in *H. melanopterus*. The eggs of both species have little or no gloss. They are pyriform in shape.

**Scolopax rusticola.** European Woodcock.

Very few authors seem to have paid sufficient attention to the eggs of this species, probably from insufficient material. Swann's description as given by Dr. Shufeldt, "pale buff, blotched," etc., is a poor and meagre description of these beautiful eggs. The ground color ranges from the palest cream (nearly white) through deeper cream to pale buff, yellow-buff and the deepest brown-buff (many of the eggs of this latter type having a distinct pink tone), speckled and spotted and blotched with yellow-brown, dark brown and purplish gray. As a rule the eggs in the same set are fairly uniform in the pattern of the markings; but occasionally you get a set with one egg much more marked than the other three, and in many cases you find two distinct shades of ground color in the same set. The number of eggs is invariably 4. Measurements: 1.75 x 1.3 in. The eggs possess a fair amount of gloss, and are shaped ovate in shape.

**Scolopax (or Gallinago) gallinago.** European Snipe.

In ground color the eggs of this species show a greater variation than in any other of the Limicolae, and the series I have before me now (50 sets or 200 eggs) certainly baffles description. Swann's description, for a general one, is very misleading if not altogether wrong; and I have certainly never seen an egg of the snipe "pale yellowish with an olive tinge". Here you have the various shades of stone color, pale buff and deep buff, all shades of brown, from the very palest to the rich red (so highly prized by collectors), a deep chocolate, a beautiful pale green (very fugitive), similar to some eggs of the Dunlin and Wood Sandpiper, pale olives and dark olives, a very dark green, and a very light dove gray. The markings are very variable, spots, blotches and irregular thin streaks (chiefly at

the larger end) of varying shades of brown, from a light chestnut to nearly black, with, in many cases, spots of violet gray. The markings in some instances are fairly evenly distributed, but are as a rule chiefly at the larger end, in many cases forming a complete cap. There is a beautiful variety having all the markings at the larger end with the remainder of the egg almost without a speck, and another variety dusted over with fine specks without any large spots at all. Several of the sets show the spiral arrangement of the spots, but this is not as frequent as in the eggs of the Dunlin. The number of eggs is invariably 4. Measurements: 1.6 x 1.1 in. Some eggs show a considerable amount of gloss, though this is usually absent. The eggs are pyriform in shape.

*Tringa* (or *Pelidna*) *alpina*. Dunlin.

The eggs of this species resemble those of *G. gallinago* very closely in color, but in comparing a series (74 sets or 296 eggs) with that of *G. gallinago*, one is struck by the greater proportion of the lighter ground colors in the Dunlin, the very deep olives and the very dark browns being almost absent. On the other hand the beautiful light blue-green and the pale buff are rare in *G. gallinago*. The surface spots are chiefly two shades of brown, a rich red and a dark brown, with, in many cases, spots of violet gray. In *T. alpina* it is rare to find the two shades of brown in the same egg as is often the case with *G. gallinago*. The markings are very varied, some eggs dusted all over with tiny specks, others with specks and fair-sized spots, and again others with great blotches of color chiefly at the larger end. The pattern markings on the eggs of the same set are often very dissimilar. Many of the eggs of this species show the spiral arrangement of the spots. The eggs are very glossy, and on this account have a brighter appearance than eggs of *G. gallinago*. I have only one set entirely without gloss. Number of eggs invariably 4. Measurements: 1.35 x .95 inch. The eggs are pyriform in shape.

*Totanus melanurus* (or *Limosa limosa*). Black-tailed Godwit.

The eggs of this species are not very variable, olive-green and olive-brown, light buffy brown to dark brown without any trace of olive, being chiefly the ground color, while the markings are usually deeper shades of the same color with rarely a few spots of violet-gray, these spots in many cases being very indistinct; but occasionally you find a set quite boldly spotted. The eggs have little or no gloss, and in the same set are very uniform in shape. The markings on the eggs in the same set are usually very similar in character. Number of eggs 4, occasionally 5. measurements: 2.2 x 1.5 in. The eggs are pear-shaped.

*Totanus calidris* (or *Totanus totanus*). Common Redshank.

The ground color of the eggs of this species does not show any great range of variation, being chiefly different shades of buff, from the very light clay color (often slightly tinged with greenish-olive) to a good deep shade; but occasionally you find a set with a deep rich red-buff ground color, spotted with a rich red-brown which gives them a very handsome appearance. The markings are usually two shades of brown, a rich red and a very dark brown, from minute specks to good big blotches, the latter being often confluent forming a zone around the larger end of the egg. Again, you find a few violet-gray markings, and occasionally a thin irregular hair-line of very dark nearly black-brown, also at the larger end. The markings on the eggs of the same set often show great variation. The eggs have little or no gloss. Number of eggs in set, 4. Measurements: 1.75 x 1.2 in. Eggs pyriform in shape and generally flattened at the top.

*Totanus flavipes*. Yellowshank (or Yellow-legs).

As this is purely an American species I should not have referred to it had

not Dr. Shufeldt surmised that the eggs were similar to those of *Totanus calidris*, the Redshank. They could never be mistaken for eggs of the latter, being smaller, of a different shape, not having the flattened butt so common to *T. calidris*, and are generally richer in their markings, and have a certain style about them that is quite foreign to *T. calidris*. Also they have a very distinct glossy appearance not common to *T. calidris*. Seebohm says of this species: "The fine series of eggs of this species in the Smithsonian Institution vary in ground color from creamy white to pale greyish brown. The surface-spots are dark rich reddish brown, and vary in size from a large pea downwards, many of them becoming confluent and forming large irregular blotches, or occasionally taking the form of streaks. Most of the markings are generally on the larger end of the egg, but on some specimens they are more evenly distributed over the entire surface. The underlying markings are pale grey or greyish brown, and are large and conspicuous. The eggs vary in length from 1.7 to 1.6 inch, and in breadth from 1.2 to 1.08 inch. The eggs are 4 in number and very handsome." This description tallies with eggs I have from the Anderson River. I was somewhat surprised to see that Ridgway makes the eggs of this species larger than those of *T. melanoleucus*, the Greater Yellowshank, being 1.69 x 1.15, as against 1.43 x 1.20 for *T. melanoleucus*.

**Totanus (or Machetes) pugnax.** Ruff.

The ground color of the eggs of this species shows a fair amount of variation, from very light grey stone to drab buff, yellow buff, brown buff, and olive without any brown, and light brown without any olive. They are spotted and blotched with two shades of brown, a good mid brown and a dark chocolate, and violet gray, the dark chocolate markings being usually on the light grey stone colored eggs, and the mid browns on the buffs and olives. Of the spots and blotches many are confluent, the larger blotches being chiefly at the larger end of the egg, though a good many eggs of this species are fairly evenly marked all over. The eggs have a fair amount of gloss, and owing to the prevalence of buff and olive grounds it gives them a rich oily appearance. The eggs in each set usually show a similarity in markings. Number of eggs in set invariably 4. Measurements: 1.8 x 1.2. The eggs are pyriform in shape.

**Numenius phaeopus.** Whimbrel.

The eggs of this species are usually very handsome, though not showing any very great variation in ground color or in the color of the markings. The boldness of the spots and blotches in many cases gives them a splendid appearance. The general color is distinctly olive of varied shades, olive green and olive brown, speckled, spotted and blotched by light and dark shades of the same color and rich brown, curious almost black thin streaks at the larger end of the egg being very common, usually only on one egg in the set, though I have one set with every egg so marked. The violet-gray markings are not so conspicuous; but I have one set with great blotches of this color so deep in tone as to have quite a purple appearance. The markings are often fairly distributed over the surface of the egg, and the eggs in each set even in markings, but in many instances the spots and blotches are on the larger end of the egg. Sometimes the markings are very indistinct and give the egg a blurred appearance. The eggs are flattened at the top. Number of eggs 4, though I have one set of 5 all apparently the product of one bird, as all the eggs are of a peculiar shape, being much narrower and consequently look more elongated. Measurements: 2.4 x 1.55 inches. The eggs have very little gloss and are pyriform in shape.

***Vanellus cristatus* (or *Vanellus vanellus*). Lapwing.**

The general ground colors of the eggs of this species are clay of various depths and buffish olive with very black brown markings; but among the eggs of this species there are some wonderful modifications, varying greatly both in color and markings and very difficult to describe. There is the palest grey stone color with very tiny black specks sparingly distributed; a deeper stone color similarly spotted but with a blotch at the butt end; another with a buffish olive ground color so completely dusted over with the tiniest specks of chocolate brown as to almost obscure the ground color; a warm buff fairly evenly spotted with black brown and smeared over with a yellow ochre color; another, greenish olive ground, with markings of blackish brown around the larger end of the egg and with a band of lighter ground color about one-fourth inch from the apex; a lovely deep olive green with enormous blotches of black interspersed with streaks all over the egg; a net brown ground with smallest markings of black brown; and rarely a fine red with darker markings of the same color, a color so absolutely unlike anything that we would expect in eggs of this species as to make one doubt its identity though I know of four sets of this variety in different collections. Generally the markings on the four eggs of a set show a great similarity to each other, but often there is one egg in a set totally distinct both in ground color and markings. Owing to the black brown markings, the general appearance of a series of these eggs (leaving out the varieties) is a sombre one. The eggs have no gloss. Number of eggs in set 4. Measurements: 1.87 x 1.34 inches.

***Charadrius dominicus*. American Golden Plover.**

Surely Dr. Shufeldt is in error when he says the eggs of this species are always much lighter in ground color and larger than those of *Vanellus cristatus*. Taking the ground color, I have never seen or heard of any eggs of *C. dominicus* as light in ground color as those of *V. cristatus* described previously, nor do the average measurements show that they are larger; indeed I have a set of *C. dominicus* taken by Macfarlane in which the actual measurements, 1.8 x 1.35, are much smaller than a great many sets I have of *V. cristatus*. Owing to the reddish buff ground color of the eggs of *C. dominicus* they appear to be brighter and handsomer eggs.

***Charadrius pluvialis* (or *C. apricarius*). European Golden Plover.**

Although this is not an American species the eggs are so beautiful that I venture to give a description of some of them. These eggs are considerably larger and more richly colored than the eggs of either *C. dominicus* or *V. cristatus*. The description given by Dr. Shufeldt is much more applicable to the eggs of this species than to those of *C. dominicus*, and the measurements he gives, 2.07 x 1.40 (Ridgway), are Ridgway's measurements for *C. pluvialis* (or *apricarius*) and not for *C. dominicus*. The ground color varies considerably, very pale buff, mid buff, olive buff, light olive and mid olive, and a rich deep reddish brown buff, spotted and blotched with blackish brown and red brown, the two shades often appearing on the same egg, either separately in spots, or the lighter brown on the top of the darker, giving a very rich appearance to the eggs. The underlying markings are usually few in number, never very large and of a darkish gray. On many of the eggs the markings are small and are evenly distributed, on others the spots and blotches are large, often confluent, and covering most of the surface of the egg, but chiefly the heavy markings are massed at the large end, sometimes forming a zone and at other times a cap. The eggs have in some instances a little gloss. Number of eggs invariably 4. Measurements: 2.07 x 1.4 inch. The eggs are pyriform in shape.

**Haematopus ostralegus.** Oystercatcher.

The eggs of this species vary in ground color from very light stone grey, cream, clay, light buff, medium buff and dark buff, to a good dark brown, spotted, blotched and streaked with blackish brown, occasionally medium brown, and exceptionally a very light yellow brown, and always with underlying markings of gray. Many eggs are finely streaked without any spots, while others have streaks and blotches combined, and large blotches of gray; others again have medium sized spots evenly distributed. The gray on these eggs is not the usual violet gray common to the Limicolae, but a deeper blue-black gray, similar to the color left by a blot of ink on white blotting paper. I know of no other eggs of the Limicolae that have this same shade of gray. The eggs have little gloss. The number of eggs is normally 3 but I have several times found sets of 4, and have heard of many others. These eggs vary greatly in size, from  $2.55 \times 1.75$  to  $2.10 \times 1.50$  inches; average measurements:  $2.2 \times 1.50$ . Eggs ovate in shape.

I have noticed that Ridgway, say in the phalaropes, gives 3 to 4 as the normal set of eggs, and also in other species. Surely it is common knowledge that the bulk of the Limicolae lay 4 eggs, and it would have been far better to have given the names of those species that normally lay less than this number, than to generalize as he does in his introduction to the Scolopacidae—eggs 2-4.

**SOME FURTHER NOTES ON SIERRAN FIELD-WORK**

By MILTON S. RAY

WITH FOUR PHOTOGRAPHS BY OLUF J. HEINEMANN

IT WAS on the ninth of June, 1910, that Mr. Henry W. Carriger and the writer gained the Forni Meadow at the base of Pyramid Peak. Inasmuch as Messrs. Barlow and Atkinson, exactly ten years before, investigated the avian possibilities of this region, a comparison of the joint findings may prove of interest. Our predecessors recorded twenty-five species of which we located all but three, the Hermit Warbler, Western Warbling Vireo and Pigmy Nuthatch. Carriger and I listed 36 species, and to an earlier summer and ever shifting distribution during migration, I attribute the cause of this more extended list.

Mr. Barlow records two nests of the Mountain Chickadee, one newly built, and one with eight fresh eggs. We also found a number of the nests of this species, but they all held small young. As Mr. Barlow records his *Tachycineta* with a question mark I may state all we noted were *T. bicolor*. Like Barlow we found no Sierra Grouse at Forni's above 6000 feet, but in similar country, northwest of Phillips' Station on June 12 we encountered a pair at an altitude of 8,500 feet.

Mr. Barlow, speaking of the White-crowned Sparrow, says\*: "On June 10 these sparrows were evidently waiting for nest building which was impracticable until the bushes should become in leaf." I may add in this connection that of about twenty nests of this bird that I have found at various altitudes in the high Sierras three-fourths have been placed on the ground and the balance in the thick evergreen lodgepole pine saplings. Of the ground-nests many were not dependent on foliage for concealment, being hidden by dead branches or concealed at the

\* Condor, II, 1900, p. 107.

foot of bare willows. Mr. Carriger on June 10, close to the cabin, found a ground-nest of the former type with five almost fresh eggs.

Other nests noted were: Two of the White-headed Woodpecker in dead tree trunks 8 and 10 feet up, both with small young. (The call of this bird is remarkably similar to that of the Cabanis Woodpecker.) One nest of the Audubon Warbler with two fresh eggs; a Mountain Bluebird's with five, incubation advanced; and one of the Blue-fronted Jay with two large young. Besides these, numerous nests of the Western Robin and Sierra Junco were noted, containing eggs and young in various stages, and one of the Western Wood Pewee uncompleted.

Near Seven Pines, on June 11, a loud, mingled chorus of bird cries drew us into a thick forest of pines and firs. Here we came upon a Western Red-tailed Hawk hovering just above a nest full of young Western Robins. The parent birds

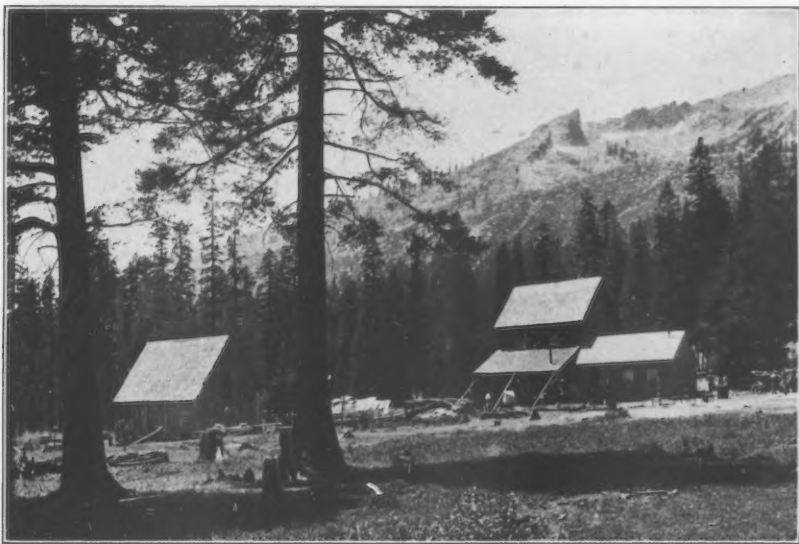


Fig. 53. PHILLIPS' STATION, 7000 FEET ALTITUDE, SIERRA NEVADA, IN EL DORADO COUNTY, CALIFORNIA

were darting viciously at the hawk's head endeavoring to thwart its murderous purpose, while assembled forest birds of various species contributed their moral and vocal support. At our approach the hawk took wing.

Desolation Valley was crossed and Lake-of-the-Woods reached on June 11. A glance at the accompanying check-list will show the effect sparse timber and bare granite wastes have on birdlife. We noted but 20 species and nearly all of these were recorded at or near Lake-of-the-Woods, which lies at the valley's edge.

On June 12, while crossing a swampy forest tract at an elevation of 7000 feet, near Phillips' Station, I spied a pair of Ruby-crowned Kinglets engaged in nest building. Carriger soon joined me and we watched the birds for some time. We were interested to learn that in constructing their new nest at the top of a

small lodgepole pine the birds were using the material of last year's abode, which hung from the tip of a lofty pine branch a hundred feet away.

While a much more restricted area, to lower elevation and more time afield I attribute the fact that we recorded a greater variety of birdlife at Phillips' Station than at Forni's. We found many nests at Phillips' but none were of any great rarity, being limited to those of the Western Robin, Sierra Junco and Audubon Warbler with both eggs and young, those of the Mountain Chickadee with young only, and of the Sierra Hermit Thrush and Western Wood Pewee with eggs or building.

On June 15, after our return to Bijou on the shore of Lake Tahoe, I found a deserted submerged nest of the Wilson Phalarope (*Steganopus tricolor*) at Rowland's Marsh, with four eggs. The shells of these on examination proved to be very flexible; whether the condition was due to some peculiarity of the eggs



Fig. 54. DESOLATION VALLEY, 8000 TO 8500 FEET ALTITUDE, NEAR PYRAMID PEAK, EL Dorado COUNTY, CALIFORNIA

themselves or to the water in which they had lain for some time, I am not prepared to say. The day following, southwest of Bijou, I located a nest of the Ruby-crowned Kinglet with four pipped eggs and three young, just out. Three other nests of this bird, one found June 23 at Phillips' with seven eggs, one June 28 near Star Lake and another near the Sierra House July 1, each with seven young, show this number to be a quite common complement. A nest of the Common House Finch (*Carpodacus mexicanus frontalis*) was noted June 18, two eggs out of which were rather uniquely marked, the usual blackish spots and scrawls being replaced by those of a light brownish.

From June 19 to 24 was consumed in making a second journey to Pyramid Peak to collect a nest, previously found, of *Leucosticte*. With the exception of this, few notable nests were taken on the trip. One of the Sierra Junco was

noted in Glen Alpine Gorge with the large and uncommon complement of five eggs. At no place on either trip to the peak did we find Sierra Grouse more abundant than about Lake Lucile, elevation 8200 feet. About Phillips' on June 24, young-of-the-year Pileolated Warblers were seen.

On June 26, after we had again returned to Bijou, I secured on the west side of Lake Valley a very dark plumaged Western Red-tailed Hawk. The skin was sent to Mr. Joseph Grinnell at Berkeley, who writes as follows concerning it: "The bird is an immature female of *Buteo borealis calurus*, and is catalogued as no. 13991 of the collection of the California Museum of Vertebrate Zoology. In its dark phase of plumage it resembles examples from elsewhere in California in similar stage. It does not seem possible to correlate this depth of coloration in certain individuals with altitude or with any other circumstance I can think of."



Fig. 55. NEST OF SIERRA JUNCO, ON SLOPE OF PYRAMID PEAK ABOVE FORNI'S, EL DORADO COUNTY, CALIFORNIA

In Cold Creek Canyon on June 28 I found my first occupied nest of that elusive nester, the Thick-billed Sparrow. It held four large young and was placed a foot up in thorny deer brush bordering a cattle path. It was a bulky structure made of sticks and twigs, next to which was placed a generous quantity of bark strips and lastly an inner lining of fine grasses. After reaching the nest the parent birds soon put in their appearance and showed great solicitude, fluttering at times almost within reach of my hand.

Returning, near the Sierra House, I found a nest of the Mountain Song Sparrow in a meadow at the foot of small willows, with three young, one of which was a partial albino, it having the entire under parts pure white and iris light reddish. Further on, near Bijou, I came upon a chipmunk in the act of destroying a nest of eggs of the House Finch. June 30 and July 1 were spent in

willow thickets along Trout Creek. Here I found the Traill Flycatcher (*Empidonax trailli trailli*) and the Yellow Warbler (*Dendroica aestiva brewsteri*) very abundant, six nests of the former and four of the latter being located. Those of the flycatcher were all placed in willows close to the water at an average height of four feet above the ground and were remarkably similar in construction, being made of bark strips, grasses and vegetable fibers, and lined with horsehair. All the nests held either three or four eggs, which varied from fresh to some well along in incubation. The nests of the warbler, being a much earlier nesting bird, contained both eggs and young in various stages.



Fig. 56. ONE OF THE ALPINE LAKES IN DESOLATION VALLEY, NEAR PYRAMID PEAK, CALIFORNIA

The last nest, which I found late in the afternoon of July 1, important only on account of the extremely late date, was one of the Belted Kingfisher (*Ceryle alcyon*) in a sand bank six feet above water and dug to a depth of four feet seven inches. The eggs, seven in number, were but slightly incubated and lay on a bed of small fish bones. The sitting bird did not leave until I was almost through excavating. Previous nests of the bird in the Lake Valley region have all held large young by the first of June.

LIST OF SPECIES NOTED IN THE CENTRAL SIERRA NEVADA  
BETWEEN JUNE 9 and 14, 1910

		Phillips' Station, 6500 to 7600 feet	Forn's, 6000 to 9000 feet	Desolation Valley, 8000 to 8500 feet
1	<i>Actitis macularius</i> . Spotted Sandpiper.....	x		x
2	<i>Oreortyx picta plumifera</i> . Mountain Quail.....	x	x	x
3	<i>Dendragapus obscurus sierrae</i> . Sierra Grouse.....	x	x	x
4	<i>Accipiter atricapillus strictulus</i> . Western Goshawk.....	x		
5	<i>Buteo borealis calurus</i> . Western Redtail.....		xx	x
6	<i>Aquila chrysaetos</i> . Golden Eagle.....	x		
7	<i>Dryobates villosus hyloscopus</i> . Cabanis Woodpecker.....	x	xx	
8	<i>Xenopicus albolarvatus</i> . White-headed Woodpecker.....		xx	
9	<i>Sphyrapicus varius daggetti</i> . Sierra Sapsucker.....	x	xx	
10	<i>Sphyrapicus thyroideus</i> . Williamson Sapsucker.....	x	x	
11	<i>Colaptes cafer collaris</i> . Red-shafted Flicker.....	x	x	x
12	<i>Chordeiles virginianus hesperis</i> . Pacific Nighthawk.....			x
13	<i>Stellula calliope</i> . Calliope Hummingbird.....	x		x
14	<i>Nuttallornis borealis</i> . Olive-sided Flycatcher.....	x	x	
15	<i>Myiochanes richardsoni richardsoni</i> . Western Wood Pewee.....	x	x	x
16	<i>Empidonax wrightii</i> (presumably). Wright Flycatcher.....	x	xx	
17	<i>Cyanocitta stelleri frontalis</i> . Blue-fronted Jay.....	x	x	
18	<i>Nucifraga columbiana</i> . Clarke Nutcracker.....	x	x	
19	<i>Hesperiphona vespertina montana</i> . Western Evening Grosbeak.....	x		
20	<i>Pinicola californica</i> . California Pine Grosbeak.....	x	x	x
21	<i>Carpodacus cassini</i> . Cassin Purple Finch.....	x	x	x
22	<i>Loxia curvirostra bendirci</i> . Sierra Crossbill.....		xx	
23	<i>Leucosticte tephrocotis tephrocotis</i> . †Gray-crowned Leuco- sticte.....		x	
24	<i>Spinus pinus pinus</i> . Pine Siskin.....	x	x	x
25	<i>Zonotrichia leucophrys leucophrys</i> . White-crowned Sparrow.....	x		x
26	<i>Spizella passerina arizonae</i> . Western Chipping Sparrow..	x	x	
27	<i>Junco oreganus thurberi</i> . Sierra Junco.....	x	x	x
28	<i>Melospiza melodia montana</i> . Mountain Song Sparrow....	x		
29	<i>Melospiza lincolni lincolni</i> . Lincoln Sparrow.....		xx	
30	<i>Passerella iliaca megarhyncha</i> . Thick-billed Fox Sparrow..	x	xx	
31	<i>Oreospiza chlorura</i> . Green-tailed Towhee.....		xx	
32	<i>Zamelodia melanocephala capitalis</i> . Black-headed Grosbeak..	x		
33	<i>Piranga ludoviciana</i> . Western Tanager.....	x	x	x
34	<i>Iridoprocne bicolor</i> . Tree Swallow.....		x	
35	<i>Vireosylva gilva swainsoni</i> . Western Warbling Vireo.....	x		
36	<i>Dendroica aestiva brewsteri</i> . California Yellow War- bler.....	x		
37	<i>Dendroica auduboni auduboni</i> . Audubon Warbler.....	x	x	x
38	<i>Wilsonia pusilla chryseola</i> . Golden Pileolated Warbler..	x	xx	x
39	<i>Cinclus mexicanus unicolor</i> . American Dipper.....	x		
40	<i>Troglodytes aedon parkmani</i> . Parkman Wren.....	x		
41	<i>Certhia familiaris zelotes</i> . Sierra Creeper.....	x	xx	x
42	<i>Sitta carolinensis aculeata</i> . Slender-billed Nuthatch.....	x	xx	
43	<i>Sitta canadensis</i> . Red-breasted Nuthatch.....	x	xx	
44	<i>Penthestes gambeli</i> . Mountain Chickadee.....	x	x	x
45	<i>Regulus calendula calendula</i> . Ruby-crowned Kinglet.....	x	xx	
46	<i>Hylocichla ustulata ustulata</i> . Russet-backed Thrush.....	x		
47	<i>Hylocichla guttata sequoiensis</i> . Sierra Hermit Thrush.....	x	x	
48	<i>Planesticus migratorius propinquus</i> . Western Robin.....	x	x	x
49	<i>Sialia currucoides</i> . Mountain Bluebird.....		x	

xx Not recorded by Barlow.

† Observed only above 9300 feet elevation.

## IDENTIFICATION BY CAMERA

By WILLIAM LEON DAWSON

WITH TWO PHOTOGRAPHS BY THE AUTHOR

**A** NATURAL rivalry—oh entirely good-natured, I trust—exists between the “gunmen” and the exponents of those more modern weapons of attack, the camera and the binoculars. Of course the arbitrament of the



Fig. 57. LESSER AND GREATER YELLOW-LEGS, PHOTOGRAPHED ON THE ESTERO NEAR SANTA BARBARA, CALIFORNIA, AUGUST 16, 1913.

gun in your own hands is conclusive, as indisputable as the virtue of the dead Indian; but there be those who find less pleasure in knock-down arguments than in the more subtle play of the wits. Science deals with facts and her cold storage chambers of induction are crowded with certainties, established truths, often uninteresting because undisputed and so, nearly forgotten. But the quest concerns itself with near-facts, probabilities, possibilities even, and herein resides the interest of life. As instruments of research in the realm of interest I submit that the binoculars and the camera are proving themselves superior to the gun.

Moreover, in the fact-product itself the work of the camera at least is by no means negligible. It, no more than the gun, depends in the last analysis, upon the credibility of human testimony, upon the honesty of the observer. You say this Tennessee Warbler's skin was secured in such and such a place. Very well; I agree that it is a Tennessee Warbler's skin. Whether it is therefore a bird of California rests with you. I will accept it as such on your say-so. I say that the accompanying photographs, believed to include portraits of the Lesser Yellow-legs (*Totanus flavipes*)\* were taken in the Estero at Santa Barbara on the 16th day of August, 1913. The conclusion that these photographs really do represent the Lesser Yellow-legs in life is less obvious, less forced upon you than in the case of your warbler skin. That is a matter for you to decide. The data which we are able to submit for your consideration are much less complete than those you offer me. I can offer only evidence

which answers the tests of outline, distribution of light and shade and comparative size. That this has some value you *must* admit, but I shall not blame you if you do not find it conclusive. For, after all, the status of *T. flavipes* as a bird of California must rest upon testimony, upon the reliability of a witness, *ne c'est pas?*

\*Disallowed as a bird of southern California by the latest authority (Willett, Pac. Coast Avif. no. 7, 1912, p. 111).

At the time these photographs were taken there were eleven of the Lesser Yellowlegs present on our Estero, and they were to be found in varying numbers for about two weeks thereafter. They proved to be rather timorous on all occasions but especially so when incited to flight by the Killdeers, which were always besing them about. In moving to and fro across the Estero they usually paid little attention to their own kind and were as ready to join a bevy of Long-billed Dowitchers or Northern Phalaropes or the solitary Greater Yellowlegs



Fig. 58. LESSER YELLOW-LEGS IN COMPANY WITH NORTHERN PHALAROPE (AT LEFT) AND WESTERN SANDPIPER (THE SMALLEST BIRD OF THE THREE); PHOTOGRAPH TAKEN ON THE ESTERO NEAR SANTA BARBARA, CALIFORNIA, AUGUST 16, 1913.

shown herewith, as to hunt up their proper fellows. The duet recorded in this critical picture lasted but a moment, for upon the instant of discovery I swung upon them with the Graflex as one would level a gun and at the "report" of the shutter they were off like rockets. And as they flew they made outcry in two different keys of Totanine indignation, the notes of these two species being even more distinct as a measure of difference than the relative size of their bodies.

#### SOME CURIOUS NESTING PLACES OF THE ALLEN HUMMINGBIRD ON THE RANCHO SAN GERONIMO

By JOSEPH MAILLIARD

WITH ONE PHOTOGRAPH BY THE AUTHOR

THE THREE nests of Allen Hummingbird (*Selasphorus alleni*) shown in the accompanying photograph are of especial interest on account of the peculiar choice of location, all three being inside of buildings more or less in use. As it was impossible to photograph them *in situ*, on account of want of light and, in two cases, because of their inaccessibility as far as a camera was con-

cerned, they were hung against a screen after being removed from their natural sites for this purpose.

The two outer nests were on the inside and just under the rafters of a wagon shed, the lower part of the north side of which was open, used to protect farm wagons and implements from the deteriorating effects of the weather. The pulley on the left of the picture was used to haul up the successful results of the numerous deer hunts that took place on our ranch, the nest having been built upon it before the opening of the deer hunting season in that year (1911). In this case the nest was finished and a brood successfully reared before the pulley was put to use.

The rope sling on the right had been used to sling some tackle in order to lift up a heavy piece of farm machinery at some time and left there after the

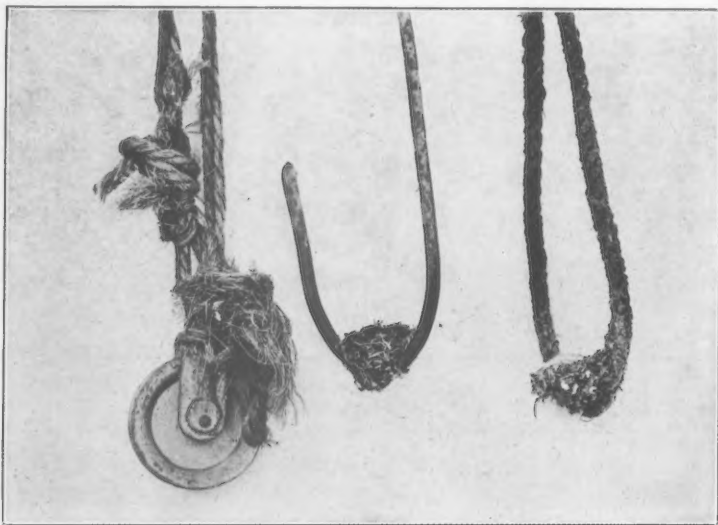


Fig. 59. EXTRAORDINARY NESTING SITES OF THE ALLEN HUMMINGBIRD AT MAILLIARD, MARIN COUNTY, CALIFORNIA

tackle was removed. The bird which discovered this site evidently thought it a fine safe place in which to rear a brood, and in this the bird was right, as it was not disturbed. This nest was built in 1912, and as it was only a few feet from the one on the pulley of the year before, it is very likely the same bird that constructed it. While this shed had been a favorite nesting place for Western Flycatchers it seemed altogether too dark to have been selected by hummingbirds, which generally build in more or less open places.

The nest in the center was in a carriage house but a few steps away from this wagon shed, and was built on a hook, made from an iron rod, suspended from a wooden bar and about five feet from the ground, which with several adjacent, was used for hanging up harness in the process of cleaning. This nest was discovered in an unfinished state by the stableman when he went to clean some harness. He reported his discovery and was admonished to use temporarily

some other contrivance, but the passing of men, horses and carriages in and out of the room was too much for the nerves of the builder and it was abandoned when about two-thirds finished.

## THE BIRDS OF SAN MARTIN ISLAND, LOWER CALIFORNIA

By HOWARD W. WRIGHT

WITH SIX PHOTOS BY THE AUTHOR

ON THE EVENING of July 5, 1913, the sloop "Siwash", with Messrs. J. R. MacIntock, W. S. Wright, E. W. Roche, F. E. McClure and the writer aboard, slipped quietly into a little bay, known as Hassler's Cove, located in the island of San Martin, Lower California. This island is situated about two hundred and forty miles south of San Diego, lies about four miles off-shore, and is ten or twelve miles to the northwest of San Quentin Bay. It is the result of a volcano that has shoved its peak above the sea, forming a round



Fig. 60. PORTION OF FARALLON CORMORANT ROOKERY ON SAN MARTIN ISLAND, LOWER CALIFORNIA

island about a mile and a half in diameter, with a small bay situated on the northeast side. There is a well-formed cone in the center, which rises to a height of about five hundred feet.

On the night of our arrival we were greeted with a strong stench of guano, which gave promise of large bird colonies; for the other islands we had visited did not smell badly until we were actually among the birds. We anchored too close to shore and as a consequence were awakened about three-thirty A. M. by the keel scraping on the ground. We were well repaid for the trouble of arising at this hour, however, for we heard the swish of many wings long before daylight, and with the first streaks of dawn we beheld a sight that will long be remembered. From the hills there poured a steady stream of cormorants, flying

about eight or ten abreast. This stream poured from these hills continuously and reached as far as we could see, toward the bay of San Quentin. The stream was like a great black ribbon that waved in the breeze and reached to the horizon. It was truly a wonderful sight. The birds kept coming as though there were no limit to their numbers.

At about seven-thirty a stream began to return, each individual heavily laden with fish. The ribbon of birds was now double—one part leaving and the



Fig. 61. PORTION OF FARALLON CORMORANT ROOKERY ON SAN MARTIN ISLAND, LOWER CALIFORNIA

other returning. The flow of birds was continuous during the daylight hours of each day we were there. The flow was unbroken—simply one steady stream going, all day, and a steady stream returning.

On landing we found a nice sand beach, but very rugged and rocky hills. Birds were everywhere: Little birds, big birds, old and young, each trying to make more noise than his neighbor. They reached for us from all sides, their incessant calling was deafening, and the stench was nearly suffocating. We spent the next few days in exploring the island, taking notes, estimating the number of



Fig. 62. FULLY GROWN YOUNG BRANDT CORMORANTS, PART OF COLONY ON SAN MARTIN ISLAND, LOWER CALIFORNIA

cormorants and attempting to find the breeding place of petrels. We were very much disappointed in not finding these latter birds breeding.

Following is a list of birds seen, together with a few notes on each of the species:

*Brachyramphus hypoleucus*. Xantus Murrelet. Heard each evening in the bay. Several sighted near-by on the way to San Quentin.

*Larus occidentalis*. Western Gull. Very numerous. They seem to breed early

here in order to be through with their family duties by "cormorant season", as we found very few small young. Whenever we went anywhere about the island a large band of these white pirates followed us. They were very tame and would swoop down to destroy eggs and eat young before our very faces.

I was disgusted, once, in seeing a gull carry a struggling young cormorant off by the neck. The youngster weighed about half a pound, but the gull swallowed him whole in mid-air. The last I saw of the gull, the cormorant was still kicking, in the gull's throat.

Another gull flew down near us and leisurely gobbled up a brood of four young cormorants. The rest of the youngsters showed no fear at the fate of their brothers and sisters but sat quietly and awaited their turn. I placed a camera, with a string attached to the shutter, on a rock near a nest of young cormorants, hoping to get a picture of a gull eating the young, but I was disappointed, as the old cormorant returned first.

*Larus heermanni*. Heermann Gull.  
Several seen about the island.

*Phalacrocorax auritus albociliatus*. Farallon Cormorant. Present in vast numbers. About 99 per cent of the bird population was made up of this and the following species. The Farallon Cormorant nested farther inland than the Brandt. Following are a few of our estimates as to the number of birds present, and the amount of fish consumed each day by this colony.

The island is a mile and a half in diameter. The area is, then, 1.76 square miles. The breeding area only reaches inland a half mile on all sides; therefore there is a circle in the center, half a mile in diameter, which contains very few nests. The area of this circle is .19 square miles. Subtract this from 1.76 and we have 1.57 square miles, or the area covered by colonies. Call it

1.50 sq. mi., roughly. There are 27,878,400 square feet in a square mile, so that the breeding district contains, approximately, an area of 34,848,000 square feet. In many little hollows, where the limits of a colony were bounded by rocks, we counted the nests and then measured the area enclosed. We then measured, roughly, the area between that colony and the next, and so on until we got several colonies. We then took the number of square feet over which we had traveled and divided it by the number of nests seen and we found it to average about one nest to every 100 square feet. There were several thousand Brandt Cormorants, which had left their nests and were standing around in droves. These we did not include in our estimate, as they were impossible to count.

Allowing, then, one nest to every 100 square feet, we would have 348,480 nests included in the inhabited area. Each nest represented, on an average, three young and two adults. We found two young sometimes, but also found many more nests with four young. Allowing three young and two adults to each nest,



Fig. 63. YOUNG CALIFORNIA BROWN PELICANS, ON SAN MARTIN ISLAND, LOWER CALIFORNIA.

we figured about 1,800,000 birds, as the population of the island. The gulls were not considered in this estimate, as their young were too scattered and the nests too hard to locate.



Fig. 64. YOUNG OSPREY, SAN MARTIN ISLAND, LOWER CALIFORNIA

not so numerous as the last. On the north side the young gathered in big droves and resembled Penguins as they tried to waddle out of our way.

**Pelecanus californicus.** California Brown Pelican. Nesting in considerable numbers on the southern shores.

**Ardea herodias.** Great Blue Heron. Several pairs were breeding in a hollow on the southeast side. There were five nests containing three young each.

**Haematopus frazari.** Frazar Oystercatcher. Several seen along the shores.

**Haematopus bachmani.** Black Oystercatcher. Fairly abundant along sheltered portions of the shores. Several found on a little lagoon on the east side. They appeared to be breeding but no nests were found.

**Pandion haliaetus carolinensis.** American Osprey. There are about thirty pairs breeding on this island. We counted thirty-five nests, one containing two partly grown young. The birds used the other nests as "look-outs."

**Aluco pratincola.** Barn Owl. My father flushed a "big yellow owl" from a blow-hole in the lava on the south side.

**Salpinctes obsoletus.** Rock Wren. Very abundant and very tame. Were easily approached for photographic purposes.

We became very much interested in estimating the amount of fish these birds consumed per day. We noted the amount each young cormorant threw up when molested, and found on several occasions a bunch of fish as big as a man's two fists. This mass was generally composed of surf fish, smelt and sardines. I have heard of other estimates of from three to six sardines a day for a cormorant, so I consider a half pound of fish a day very conservative.

Allowing half a pound of fish a day for each of the 1,800,000 birds, the entire population would consume about four hundred tons a day or about ten thousand tons a month! The fishing was done in San Quentin bay, exclusively, but in that bay and in Hassler's Cove, on the island, fish were found very plentiful, and always hungry, showing that the birds do not seriously lessen the number of fish.

**Phalacrocorax penicillatus.** Brandt Cormorant. Present in large numbers, though



Fig. 65. ROCK WREN, SAN MARTIN ISLAND, LOWER CALIFORNIA.

## A MNEMONIC DEVICE FOR COLOR-WORKERS

Based on a consideration of Ridgway's "Color Standards and Nomenclature"

By WILLIAM LEON DAWSON

WE HAVE ALL caught ourselves making "pictures", geometrical designs or graphs, out of mental concepts. Thought relations of all sorts tend to arrange themselves automatically into spatial groups. Thus, the days of the week to our minds are segments of a closed circle, or steps of a ladder, or links in a chain, as the case may be. If an eighth day were added to the week by statutory decree we should chop open our mental circle, change the curve and insert the new segment, or we should add another rung to our mental image of a ladder, or add an eighth link to our chain. But of all mental graphs I venture to say that our color schemes have been least perfectly organized, least logical, least related. Following the analogy of the chart we have sometimes pictured color groups in two dimensions, but the charts themselves remained dissociated, unorganized, arbitrary. What may be the extent of Ridgway's indebtedness to other color theorists I do not know—he hints at such indebtedness in his "prologue"—but so far as zoological color-workers are concerned it remained for the orderly mind of Robert Ridgway to so present color relations that we may conceive them in three dimensions, to fix it indeed so that we must so conceive them. To be sure the limitations of book making still necessitate the use of dissected charts serially presented. But even with this handicap the sequence is so logical that we are able to reconstruct a mental cube or visualized color-file having length, breadth and thickness.

Color-file is perhaps the best name for this new piece of mental furniture. Let us conceive it as made up of prisms, cubes, of colored glass. To understand its order, therefore, let us examine its first or facing wall—thirty-seven cubes, or columns of cubes, wide, and nine tiers, or rows of cubes, deep. The central tier reading from left to right comprises the pure colors of the spectrum, red, orange, yellow, etc., together with carefully selected intergrades, orange-red, orange orange-red, red-orange, etc.,—thirty-six colors to be known as *hues* (with red repeated at the extreme right to give meaning to the violet-red series). The bottom tier of our wall is pure black, the limit, or asymptote, of the successively deepening *shades* produced by mixing the pure color of the central member of each column with increasing percentages of black. The top tier of our wall is pure white, the limit, or asymptote, of successively lightening *tints* of the central color produced by increasing dilutions of white. In Ridgway's scheme three steps are made in each direction, so that we have seven colored tiers separating the black and the white boundary tiers.

So much is commonplace; the next step is inspiration—Ridgway's. The third dimension of our color file is secured by progressive dilutions of *neutral gray*, additions of a uniform amount in a given wall, each block differing from its neighbors in the same wall in precisely the same *degree* in which the pure color blocks differ from their neighbors. It is obvious that if progressive additions of gray differed only by one percent, we should have one hundred walls, bounded on the rear by a wall whose central tier was pure neutral gray and whose successive *tints* approached the top layer of pure white, and whose successive *shades* approached the bottom layer of pure black, as in the first wall. As a matter of convenience only five such progressively grayed intermediate walls are found necessary to cover for practical purposes the whole range.

The secret of this magic fortress is the value of *neutral gray*. To parody Goethe: *Grau ist eine ganz besondere Farbe*. Gray (neutral) is a tint of a very special kind. It is the epitome or synthesis of all other colors in turn, including that color positive and negative of color, black-and-white. Its use precludes the necessity of an intimate acquaintance with color combinations. You do not have to puzzle over a given color and say, this is blue *plus* red *plus* green *plus* violet. You have only to say, this is blue plus so much (or approximately so much) neutral gray, and you have it. All this may be rice to the initiated, but it is still "caviar to the general."

Once you get the idea you cannot get away from the color-file. It has the ultimate authority of simplicity, of logical sequence, and of comprehensiveness. One even ventures to hope that such a color-file may one day be actualized in glass or blocks of painted wood, as a recognized essential of the color-worker's apparatus. With such a device one might, for instance, by lifting off the top layer of white prisms survey all possible light tints at a glance, or by lifting off the four top layers (or whatever number you elect to have in your scheme) view all the pure colors and all gray tones thereof at a glance. This would be simplicity itself. Meanwhile this mental or "mnemonic" color-file will be found indispensable.

## A PRACTICAL SYSTEM OF COLOR DESIGNATION

### A Partial Critique of Ridgway's "Color Standards and Nomenclature"

By WILLIAM LEON DAWSON

WE ARE UNDER deep and lasting obligation to Mr. Ridgway for having brought order out of chaos in the standardization of color. He has shown a comprehensive grasp of the whole color problem, and has brought to its solution a practical sagacity never before equalled. Thanks to him we have at last a real color key. The first edition of "Color Standards and Nomenclature" might have been a hundred thousand copies instead of one thousand if attention could first have been properly aroused to this most exquisite and intimate of human interests, color appreciation. However, we are overjoyed to see an authoritative beginning made. The practical standardization of color has been accomplished; but the same cannot be said of the equally practical (though perhaps not equally important) standardization of color names. The reason for this is apparent. Color names have arisen singly and at haphazard, according to the convenience, or necessity, or caprice of the individual. Collectively, they have come down to us with a thousand varying sanctions of experience, of poetry, and nature and all the handicrafts besides. For every color name that has lived, a dozen have been still-born, or died in infancy. To make selection from this motley host is not only to be arbitrary and capricious, by reason of the thousands of other names rejected, but it is to fail in the fundamental purpose, which is to fix concepts in their necessary relations.

Now the function of language is to communicate thought, ideas. This it does by the use of words, words which are chiefly the symbols of a common experience. The more established the value of the component words, *i. e.*, the more certain their appeal to common experience, the clearer the language, the more

readily understood the thought. But words not only symbolize experiences: they indicate relationships; they point out the way to other experiences. If they *relate themselves* to common experience, they become intelligible, even though the experience connoted by the word itself is a new one. Words must either record common experience, or point out the way to such experience, or remain unintelligible.

Now this is the trouble with color names, even those employed in Ridgway's new Nomenclature of Color. They do not appeal to common experience. They are so recondite or so arbitrary, or so fanciful as to be incommunicable, save to specialists as highly trained as Ridgway himself. They are not only meaningless to such as do not possess the "key," they are so unrelated in thought that they can be found or re-found in the book itself only by constant reference to the index. Thus, "Hermosa Pink" is in the red series; "Bittersweet Pink" in the orange series; "Phlox Pink" in the violet series, etc. "Chatanay Pink" crops up in the gray-toned tint of Scarlet-red; and "Tourmaline Pink" among the double-gray-toned tints of Rhodamine Purple. Pink does suggest redness, so that one does not need to hunt outside of the twelve hues between Violet-Red and Red-Orange; but here are several hundred possibilities; and it will puzzle the student to find, save through the index, Patent Blue or Acetin Blue or Corydalis Green or Mytho Green or Asphodel Green, even with the basic hue named outright. These names may be found to be exact when you have arrived, but there is nothing about them which points the way to the inquirer. Such names do not appeal to common experience, and they contain only the smallest suggestions of relationship.

It is quite conceivable that a student, preferably a younger one, should memorize this entire list, should master it so that he could recognize and name a color at sight; but even so his report would be unintelligible to any one else who had not similarly mastered this Chinese alphabet of color. He would still require color terms by which it would be possible to communicate his impressions to the general reader.

If this is ever to be done the basic names of color nomenclature must be simplified in character and reduced to the lowest terms, and all other color names must be so constructed as to point clearly to the nearest base. This is no easy matter. Perhaps it cannot be done. Perhaps, however perfectly done, the public would not stand for it, any more than they would have stood for Volapük or Esperanto or the other honest attempts to provide a universal language. But unless it is done, technical descriptions, as of bird plumage, couched in the color terms of the new key, will remain in sealed books.

I have no such ideal system to propose. That is a matter which might well engage the profound attention of influential learned bodies. Doubtless, no one is more conscious of this fundamental requirement of color nomenclature than Mr. Ridgway himself, but he was too modest to advocate such a sweeping change. Nevertheless, he has pointed out one way, through the use of descriptive adjectives where established names were lacking—ideally in the case of Neutral Gray, whose successively diminishing tints are designated as light neutral gray, pale neutral gray, and pallid neutral gray; and whose deepening shades are deep neutral gray, dark neutral gray, and dusky neutral gray. This suffices when we wish to refer to a norm only three points away, but it would break down of sheer cumbersomeness if we wished to refer back through successive gray dilutions to the normative hue.

But some way *must* be found around the difficulty—for thought, if not for printed description. Because of this necessity I am emboldened to describe my own

thought process and to record the terms by which I seek to make a color name clear to my own apprehension. Accepting Ridgway's arrangement and spacing of colors as a practical fixity, and referring all colors to the thirty-six-hue base, I designate the three diminishing tints of each local base as tint, half-tint, and quarter-tint, respectively; and the shades as shade, double-shade and triple-shade, respectively. This is not accurate in either case if we base our comparison upon percentages of black or white, but it is practically correct if we appeal to the eye and that is what we are after. In like manner referring back to the normative hues all successive changes affected by additions of neutral gray, I speak of gray (32%), double-gray (58%), triple-gray (77%), quadruple-gray (90%), and quintuple-gray (95.5%)—the last two, of course, rarely required. In this way, the blue of a Valley Quail's breast designated in the text of Ridgway as Light Payne's Gray, is thought of as the double-gray half-tint of Spectrum Blue; and the buffy of its lower breast, known as Light Buff, is related in thought to the Cadmium Yellow base by saying that it is the gray quarter-tint of that hue. It is thus clearly differentiated from "Cartridge Buff" or "Tilleul Buff", which are as truly light-buffies, but which differ very materially in quality from the arbitrarily named Light Buff.

In *analyzing* a color, that is, in seeking to arrive at its proper designation, the reverse of this process is of the utmost importance. One first decides upon its basal or distinctive element, then estimates the relative admixture of gray, then turns expectantly to the appropriate column to determine the tint or shade. As a novice I should never by any possibility have guessed that a Valley Quail's breast is light Payne's Gray (indeed, I suspect I shall die in ignorance of the difference connoted by the *names* Payne's Gray and Puritan Gray), but I did guess first off, within one point, that it was a double-gray quarter-tint of Spectrum Blue. A brief experience leads me to the belief that this logical process will always be followed, in practical disregard of arbitrary names. For this provision of a logical method of color inference, we are immeasurably indebted to our foremost living ornithologist, Robert Ridgway.

## PRELIMINARY REPORT UPON THE DISEASE OCCURRING AMONG THE DUCKS OF THE SOUTHERN SAN JOAQUIN VALLEY DURING THE FALL OF 1913

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WITH ELEVEN PHOTOGRAPHS AND ONE DIAGRAM BY THE AUTHOR

**A**BOUT the month of August, 1909, a fatal epidemic broke out among the water birds, especially among the ducks, of the vicinity of Soleta Lake, which lake, now dry, was situated about thirty-five miles southeast of Tulare Lake. This epidemic, gradually spreading, raged throughout the hot part of the season till the cool weather of the fall, when it ceased. At this time Soleta Lake was quite stagnant, becoming more so until it finally dried up some two or three years later. There were reports of a fatal disease among the water birds the year before, but little attention was paid to them.

During the following year, that is, 1910, the same disease, apparently, broke out not only on the above mentioned waters but also on Buena Vista, Goose and Tulare lakes. Thousands of birds died. Members of the State Fish and Game Commission made several expeditions into the regions thus affected, but were unable to ascertain the cause of the malady. The year following this, the disease again appeared, and an attempt to determine the cause of the mystery was made but not completed. The year 1912 was not an off year for the disease, nor has the present season been an exception. On the other hand, the present season has been almost a record year for a high death list.

Whatever has been the causative factor of the malady, it does not seem to have been one which rendered the birds affected by the disease dangerous for human consumption, because many thousands of sick birds have doubtless been distributed through the markets of San Francisco, Los Angeles and other places. The writer has been told by reliable parties that, ever since the disease was first known, market-hunters (some of whom are not noted for the highest principles of integrity and morals) have reaped a two-fold harvest in their business by selling sick birds. These were easily obtained and being fat, sold well. It is said that



Fig. 66. BED OF TULARE LAKE, ON SOUTH SIDE; MANY MILES OF THIS SORT OF GROUND WERE COVERED BEFORE ANY OPEN WATER WAS REACHED; PHOTOGRAPH TAKEN SEPTEMBER 30, 1913.

the market hunter would pick up a string of sick ducks, hang them out, get off several yards and fire shot into the birds to kill them, and thus allay any suspicion as to the nature of their condition and capture. Certainly the market hunter of wild game should have no more right to sell diseased birds than the stock man has to sell diseased beef or mutton.

Great interest has naturally been aroused regarding this condition, as thousands upon thousands of our finest game birds, representing a large sum in dollars and cents to the people of the state, have perished from the unknown cause.

No systematic investigation was made on this subject until the present season when the State Fish and Game Commission, working in co-operation with the University of California, detailed a research assistant from this latter institution to make as thorough an investigation of this destructive disease as means at his disposal should permit. The present article is only a preliminary report, which is intended to answer some of the many questions which have been put to the Fish and Game Commission regarding the subject.

The investigation was begun on September 19, 1913. The first work consisted of a general survey of the situation, and the collection of a large number

of sick birds, which were carefully examined. Later, experimental work was carried on at Tulare Lake, the results of which will be described toward the close of this paper.

The State Fish and Game Commission, besides directly financing this investigation, gave every possible assistance toward the furtherance of the work. Deputy Fish and Game Commissioners Tipton Mathews and E. W. Smalley, both under orders, were in the field continuously for over three weeks, gathering material and transporting the necessary equipment from place to place. The machine of Mr. Mathews greatly facilitated the undertaking. The preliminary examination of ducks and other birds was made in the laboratory of Dr. Frank Griffiths of Hanford, who kindly furnished headquarters for this work. Professor J. G. Davidson, of the Hanford Union High School, deserves mention for the valuable analyses which he made of water, gases, and blood.

Tulare Lake, situated in the southern portion of Kings County, on the western side of the southern San Joaquin Valley, is not the large body of water that one would expect to find from looking at the ordinary travelers' map of California. At present the lake is lower than for the past seven years, and at the present rate of evaporation it will most probably be entirely dry in another year, unless the coming winter proves a wet one. Prior to 1906



Fig. 67. DUCKS RISING FROM A LEVEE IN TULARE LAKE, OCTOBER 3, 1913;  
NOTE DEAD BIRDS IN FOREGROUND

this lake had almost completely dried up, and nearly all of the bottom lands were farmed. It was during this period that the lake bed was dyked off on the section lines, and this was the origin of the levees of which I shall speak later on.

These levees, in the central portions of the lake region, were built only a few feet high. At present they are over a large area submerged, while around the borders of the lake they gradually rise out of the water and thus afford resting places for water birds. As soon as dry enough these levees are used as roads for travel, since most of them are from 20 to 40 feet wide, and are dry long before the land between them.

The winters of 1905-6 and 1906-7 were years of heavy rain fall, and the lake, together with the adjoining sloughs, filled to a mark higher than for many years. The sloughs connecting this Lake with Buena Vista and the San Joaquin River are now very low or dried up. Goose Lake is entirely dry, and Buena Vista Lake, situated in the southwestern part of Kern County, is also very low. As our investigations were carried on mainly at Tulare Lake, we shall confine our discussion principally to that region.

Following the intermittent recession of the waters of Tulare Lake during each of the past two or three years, the land, as soon as dry enough to work,

has been planted with Kaffir corn, grain, squash, etc. Thus at the present time these crops extend to within two or three miles of the water line. But between the planted areas and the water there is no vegetation at all. The lake is merely a body of shallow stagnant water far away from any vegetation, plant or tree, and consequently there are no breeding places for ducks or any kind of birds whatsoever (see fig. 66). The bottom is a soft black mud containing large amounts of disintegrating organic matter. This mud is the abode of considerable insect and worm life, and consequently furnishes a certain amount of food for water birds.

Due to the processes of fermentation which go on in the bottom mud of the lake, a great deal of gas is generated, principally marsh gas; but I do not believe that this gas is responsible at all for the epidemic, as has been suggested by some. The water is decidedly brackish, is translucent or almost opaque in places, and is of a greenish yellow color. Its heavy content of alkali gives it a very soapy, almost slimy, feeling, and over large areas there is a heavy covering of a yel-



Fig. 68. DEAD DUCKS (SPOONBILL, SPRIG AND TEAL) ON LEVEE NUMBER III IN TULARE LAKE, OCTOBER 2, 1913

lowish-brown mass of fermenting organic debris. The fish—carp, perch, bass, and catfish—of which the lake had a great abundance at one time, all died prior to the summer just past, the water becoming too stagnant for their existence.

In view of all these conditions, one can readily see that Tulare Lake does not now present the most favorable conditions for the existence of ducks or any other kind of water birds.

The more common species of birds observed in the immediate vicinity of the waters of Tulare Lake from September 19 to October 7, 1913, were as follows:

Ducks:

1. Spoonbill or Shoveller (*Spatula clypeata*).
  2. Pintail or Sprig (*Dafila acuta*).
  3. Cinnamon Teal (*Querquedula cyanoptera*).
  4. Green-winged Teal (*Nettion carolinense*).
- Farallon Cormorant (*Phalacrocorax auritus albociliatus*), few.  
White Pelican (*Pelecanus erythrorhynchos*), few.

Sandhill Crane (*Grus mexicana*), few.

Mudhen or Coot (*Fulica americana*), few.

Northern Phalarope (*Lobipes lobatus*).

Black-necked Stilt (*Himantopus mexicanus*), many at first, but became scarcer.

Avocet (*Recurvirostra americana*), few.

Killdeer (*Oxyechus vociferus*), few.

Sandpiper, several species.

Turkey Vulture (*Cathartes aura septentrionalis*), few.

The food supply for water birds around Lake Tulare was not the best. The cranes, pelicans, and cormorants had nearly all emigrated from this lake as there were no more fish for them to feed upon, the fish having, as previously stated, died some months before. But the ducks and smaller water birds were getting a fairly



Fig. 69. BLACK-NECKED STILTS ON THE WING AT  
TULARE LAKE, SEPTEMBER 19, 1913

abundant food supply from the insects and worms in the lake. Several stomachs of well ducks showed that these birds had been feeding on aquatic insects and small worms. However, the ducks in this locality feed principally at night, in regions quite remote from the lake, and return to the lake for safety during the day. About dark these birds leave the lake and often fly long distances to cultivated fields where they feed on grain or alfalfa. When through feeding they return to the lake for the day. Their arrival may be during the night, but generally about daybreak or a little before. In making these flights large flocks are sometimes seen, but most frequently the flocks are small and broken.

Narrowing our discussion now to ducks only, we should first note the source from which these birds come. Most of them are not native to this state. They have come here from the north—from British America and Alaska. Some years

ago ducks bred in considerable numbers in the San Joaquin Valley. In 1907, for instance, Goldman (CONDOR, x, pp. 200-205) found conditions favorable for the breeding of water birds, and ascertained the nesting of seven species of ducks. But since the lakes and sloughs have undergone such marked changes, and since the former feeding and shelter grounds have been destroyed, there is no chance for them, and so we now find very few breeding in this part of the state.

It is impossible to give even approximate numbers of the ducks in the Tulare Lake region. Besides the dead there were many thousands of live birds on the lake at the time of our investigation. The accompanying photographs (figs. 67, 70) will give an idea of the numbers of birds which come together on the old levees during the day time. The writer feels safe in estimating that there were at least a quarter of a million ducks on the lake at the time of the investigation.

The disease of the present year first appeared during the latter part of July and was at the height of its course from about the first to the middle of September. By the 10th of October it was decidedly on the decline. This is in general the course of the epidemics of former years. That is, the first appearance is dur-

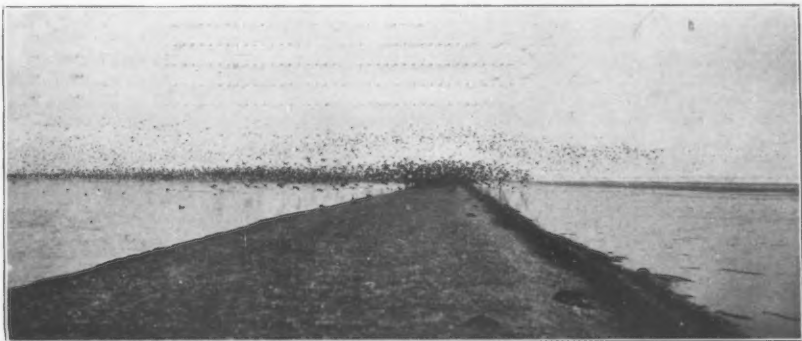


Fig. 70. CLOUDS OF DUCKS RISING FROM LEVEE IN TULARE LAKE; NOTE DEAD AND SICK DUCKS IN FOREGROUND, BOTH ON LAND AND WATER; PHOTOGRAPH TAKEN OCTOBER 3, 1913

ing the very hot summer weather, and the cessation is rather abrupt as the cool weather of the fall comes on.

Special pains were taken to count and estimate the number of dead birds on the lake. Our principal observations were taken on the north and west sides of the lake, where, it is claimed by some, there was less mortality than on the south side. However, it must be noted that the prevailing winds on the lake at this time of the year are from north to south; and therefore this factor may be responsible for the greater abundance of dead birds on the south side of the lake, because many carcasses are thus doubtless carried across the lake by the wind.

But because conditions on the north side of the lake were more favorable for our work, we selected that side for our purposes and consequently are able to give more data from this restricted locality than from elsewhere. The accompanying diagram and table are self-explanatory except that it should be noted that the levees, varying in width up to forty feet, are measured from the water line on one side of the levee to the water's edge on the other side. The counts

TABLE ENUMERATING DEAD BIRDS FOUND ON LEVEES I TO V INCLUSIVE, AS SHOWN IN ACCOMPANYING DIAGRAM (FIG. 72). NUMBER OF DEAD ARE SEEN TO HAVE BEEN STEADILY INCREASING DURING THE TIME OF THE INVESTIGATION

Date of count	Sept. 30	Oct. 1	Oct. 2	Oct. 3	Oct. 5	Totals
LEVEES	I	II	III	IV	V	
Teal	52	79	377	134	...	642
Pintail	25	55	166	325	...	571
Spoonbill	32	25	201	282	...	540
Sandpipers	2	7	27	10	...	46
Stilts	3	15	3	...	...	21
Coots	2	...	9	6	...	17
Avocet	...	4	7	...	...	11
Cormorant	...	...	6	2	...	8
Gulls	2	1	1	2	...	6
Pelican	...	...	3	...	...	3
Unclassified	...	...	...	...	214	214
Totals	118	186	800	761	214	

Grand total ..... 2079

Average number of ducks per mile on first four levees, 467; average of all kinds of birds, 497. Numbers within levees not counted.

LEVEES: No. I Three-fourths mile long..... 0 to 25 feet wide  
 No. II One mile long..... 30 to 40 " "  
 No. III " " "..... 10 to 30 " "  
 No. IV " " "..... 10 to 25 " "  
 No. V Half mile long..... 20 to 30 " "

(Width of levees measured from edge of water on one side to edge of water on the other side.)



Fig. 71. SICK AND DEAD DUCKS ON LEVEE AT TULARE LAKE, SEPTEMBER 21, 1913; THE SICK BIRDS ARE UNABLE TO FLY OR WALK; THEY REMAIN IN THIS PARALYTIC STATE FOR SEVERAL DAYS BEFORE DEATH

made included just those birds which remained on the levees after our approach. No birds were counted which were able to scramble into the water and swim off; only those which were dead or too sick to travel were enumerated. Two men generally conducted the count,—one to call off the names of the birds, the other to tabulate them.

Of course it was impossible to estimate the number of dead birds on the lake from the numbers on the levees alone, because, in the first place, more birds died on the levees than elsewhere, the sick and well both making an effort to attain these resting places during the day; and, secondly, the strong north winds blew the carcasses of those dying on the water southward against the levees. In nearly every case there were more dead birds on the north and west sides of the levees

than on the south and east sides. Further, it was out of the question to count all the birds on any of the sections between the levees, as part of this territory was in heavy mud or under water. But taking into account the ducks on these areas and those on the levees, the approximated average for all the territory affected was about one to the acre at the very least. Then figuring 25,000 acres as the total area of this affected territory, we have a total result of 25,000 dead ducks, besides many other birds.

As stated above, ducks on the lake usually prefer to locate for the day on the old levees where these are very nearly submerged. Where great numbers of birds visited these levees, the latter soon became very filthy. Circumstances favored such conditions. The ground was a soft, black mud, full of

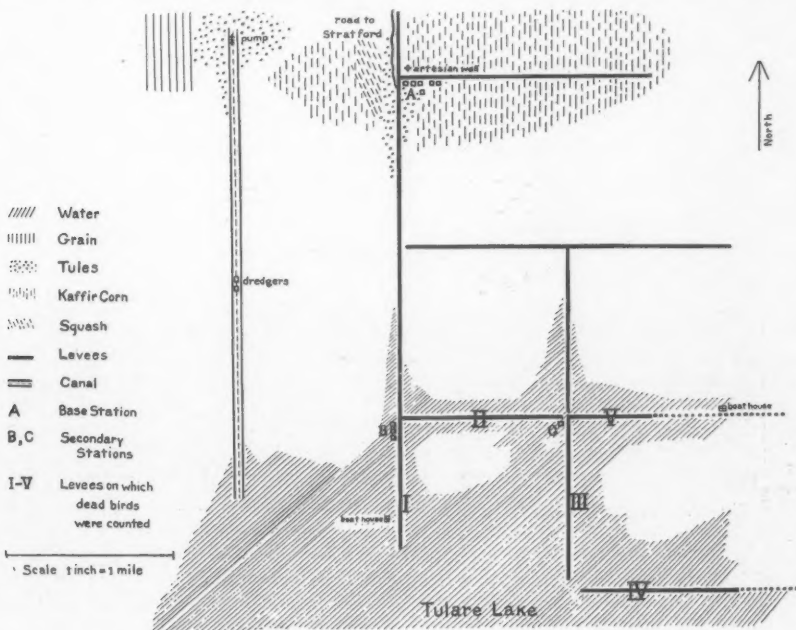


Fig. 72. DIAGRAM SHOWING NATURE OF COUNTRY WHERE EXPERIMENTS WERE CARRIED OUT, AND OBSERVATIONS MADE, ON DUCK DISEASE AT LAKE TULARE, SEPTEMBER 19 TO OCTOBER 7, 1913, BY THE STATE FISH AND GAME COMMISSION

decaying organic matter, consequently when visited by thousands of birds, sick and well, all paddling together, these levees became very foul. Sick birds, too weak to travel, were often found stuck in this mud, or even half buried in it.

The first symptom of the disease, so far as could be learned, was the loss of the power of flight. Following this, the birds became unable to walk. But even after losing this function, they were able to swim and dive for several days, sometimes almost up to the point of death. Paddling in the water never seemed difficult, but attempts to dive often failed to take the birds beneath the surface of the water. These functions, of course, were dependent on the condition of the birds. On becoming very weak many of the sick birds took to the levees where they might

rest. Here they would remain in one spot, often stuck in the mud, until death occurred. A later symptom of the disease was the development of a whitish-green or yellowish diarrhoea.

During the later stages of the disease the sick birds were often found barely holding the head up or with the neck and head extended out upon the ground as if dead. While in this languid state, and under conditions of great heat and dryness, the eyes often became closed due to the formation and drying of matter in them, the birds being unable to clean themselves. At times flesh flies deposited their eggs or larvæ in the corners of the eyes, and this doubtless gave rise to the opinion on the part of some people that the birds were dying from "worms in the eyes". The mouths and throats of the sick birds were often dry and parched, due to cessation of drinking and feeding.

When a large flock of ducks on a levee was approached, most of the birds would fly off while the invaders were still several hundred yards or a quarter of a mile away. But in these flocks it was nearly always to be noted that some of the birds would lose distance and lag behind in the flight, and often times



Fig. 73. MAIN CAMP (A) FROM WHICH EXPERIMENTAL WORK WAS CARRIED ON;  
NOTE KAFFIR CORN FIELD IN BACKGROUND

would alight after a short journey, apparently weak or disinclined to follow. Other birds would make no attempt to go when the main flock arose. On closer approach, these individuals, if on the water, would swim off with fair rapidity; if on land, those able to travel would make an effort to get into the water and swim off. Many would attempt to fly and, after half swimming and half flying for a distance, would gain wing and fly perhaps a quarter of a mile, but more likely only a short distance, when they would slow down quickly and flutter onto the water. Others would not clear the water at all, but simply race along the top of the lake creating a big commotion, splashing the water violently, often quacking loudly as they made every possible effort of head, wings and legs to get out of the way. If the enemy got too close, many would try to dive. Sometimes they would remain down in the water several seconds, even twenty or thirty seconds, and then come up in another place several yards away. But the more seriously stricken birds would not be able to get much more than the head out of sight. Sick birds out upon the lake could nearly always be recognized even at a considerable distance because they sat lower in the water, being water-logged, and not

infrequently their tails drooped in the water. These birds, becoming too weak to hold the head up any longer, naturally died by drowning.

Some of the very sick birds would make no effort to move even when picked up, while others, though unable to walk or fly, would flap the wings, stretch the neck forward and quack violently. In a majority of cases where the sick birds could make no headway at all, they would open and close the mouths with a sort of hissing noise if a person came near. But as this was emitted at other times, it was plain that this was not a symptom of the disease. Temperatures of the sick birds were subnormal, ranging from 99 to 105 degrees Fahrenheit, while the normal temperature is 107 degrees Fahrenheit.

Postmortem examinations revealed less than one would naturally expect to find. There were no intestinal lesions or hemorrhages below the stomach. Most of the organs appeared nearly normal. However, the stomachs were contracted, with rigid folds of the mucous membrane and muscles, and usually showed evidences of one or more hemorrhages, though not always. In most cases this inner lining, with parts separated from the tissues underneath, would show patch-



Fig. 74. DEPUTY GAME COMMISSIONERS MAKING CAGES FOR DUCKS TO BE KEPT UNDER EXPERIMENTATION; OCTOBER 24, 1913

es of a heavy necrotic growth and decomposition of the tissue. This was generally accompanied by a heavy viscid mucus at the anterior opening of the stomach.

As these and other minor symptoms indicated a slow poisoning of some kind, and as no disease-producing organisms could be located in the blood nor grown on agar, it was decided to carry on some experiments to determine if the water of Tulare Lake possessed the ingredients which were responsible for the malady.

Consequently a camp was temporarily established for this purpose on September 24 by deputy Fish and Game Commissioners Tipton Mathews and E. W. Smalley, on the north side of Tulare Lake. This camp was located near a small artesian well close to the southern border of a Kaffir corn field. It was just two miles from this camp to the edge of the lake. Three stations for carrying on experiments were established: one (A) at this camp, one (B) on the edge of the lake two miles directly south, and one (C) just one mile directly east of the second one (see fig. 72). Wire cages, four to six feet long, three feet wide and three

feet high, were constructed for holding the birds at these various places (see figs. 73, 74). The necessary food, shade and water were given according to the test to be performed. Operations were begun on September 25, 1913, and continued until the 8th of the following month.

Two dozen Spoonbill ducks were shipped down from the State Game Farm at Hayward, these birds being used as subjects and controls in the work. The following experiments and results were obtained.

(1) September 25 to October 7, 1913. Several dozen sick ducks were brought to station A, and put in cages containing fresh water and good food. Over ninety percent recovered completely.

(2) September 26, 1913. Three sick ducks were taken from the lake, placed in a cage on the edge of lake, and given good water and food. All three recovered completely.

(3) September 25, 1913. Two Spoonbill ducks from the State Game Farm



Fig. 75. THE WRITER OF THE PRESENT ARTICLE MAKING A MICROSCOPIC EXAMINATION OF THE BLOOD OF A SPRIG

were placed in a cage at station A, and given food, but unboiled lake water only to drink. Both died in less than four days with symptoms similar to those found dead on the lake. The experiment was repeated with like results.

(4) September 26, 1913. Two Spoonbill ducks from the State Game Farm were placed in a cage at station A and given food, and boiled lake water only, the water being boiled for one hour. Both died in less than four days, with symptoms similar to those found on the lake. The experiment was repeated with like results.

(5) September 25, 1913. Four Spoonbill ducks from the State Game Farm were placed in a cage at station A and kept on good food and good water. These were kept as controls. All remained healthy.

(6) September 27, 1913. Two normal birds kept at station A were injected

intravenously with  $\frac{3}{4}$  cc. of live blood from sick birds. No ill effects could be noted.

(7) September 25, 1913. Two Spoonbill ducks from the State Game Farm were placed in a cage at the edge of the lake. These were given good food and lake water. Both died in less than five days.

(8) September 25, 1913. Three Spoonbill ducks were placed in a cage at the edge of the lake. These were given good food and artesian water. They remained healthy.

(9) September 27, 1913. One normal duck (Spoonbill) was placed in a coop with the sick ducks at station A. It remained well throughout.

(10) September 27, 1913. One normal duck (Spoonbill) was placed in a coop with several dissected birds. On October 3 the bird got head in crack and strangled to death.

(11) Three birds were placed in a cage with good water containing chopped-



Fig. 76. REMAINS OF BIRDS, CHIEFLY DUCKS, ALONG SLOUGH AT NORTHEAST SIDE OF BUENA VISTA LAKE, KERN COUNTY, CALIFORNIA; COYOTES, COONS, ETC., HAD BEEN FEEDING ON THE DEAD AND DYING BIRDS HERE FOR TWO MONTHS OR MORE; PHOTOGRAPHED OCTOBER 9, 1913.

up parts of sick birds. Birds remained healthy.

(12) October 3, 1913. Three birds were confined in cage on lake. In cage, at water level, was set a platform, over which was placed a tight box, but containing entrance for birds. Artesian water and good food were provided. The experiment was to test effect on the birds of the gases which arose from the lake. This experiment was carried on only four days. Experiment not carried on long enough for definite results.

Thus, the examinations made and the experiments carried on tended to prove that the cause of the trouble lay in the lake water, either as a mineral or as an organic constituent.

At present, analyses of the water and gases of the lake are being made and experiments are being carried out to confirm or refute our conclusions regarding this duck disease. Some time will be required before all this data can be obtained.

## CONDITIONS AT BUENA VISTA LAKE

During the early part of September, Deputy Tipton Mathews of Wasco, California, visited Buena Vista Lake, in southwestern Kern County. At that time, ducks were dying very rapidly. Deputy Mathews, in walking from the shallower portions of the lake along a slough on the northeastern side, counted over 1500 dead ducks in less than one mile. In some places the dead almost touched one another. On October 9 the writer visited this spot. Few birds were then dying there, but the great mass of carcasses was simply appalling. The ac-



Fig. 77. SICK DUCKS REMOVED FROM BUENA VISTA LAKE AND PLACED ON FRESH WATER SOON RECUPERATED. THESE BIRDS WERE ENCLOSED BY PERPENDICULAR BANKS AND WIRE FENCING, THE FLIGHT FEATHERS OF ONE WING BEING CLIPPED TO PREVENT THE BIRDS FROM FLYING AWAY AS SOON AS WELL; PHOTOGRAPH TAKEN OCTOBER 9, 1913.

companying photograph (fig. 76) does not nearly do justice to the situation. Ducks constituted the main portion of the remains; still, many cormorants, pelicans, etc., were represented. A number of sick birds were obtained and examined. Postmortem showed conditions similar to those of the Tulare Lake ducks. Samples of the water of Buena Vista are being analyzed.

It is hoped that by further experimentation the specific factor of the malady may be brought to light, and that it may prove expedient to effect means by which this great loss of birds may be greatly reduced, or even prevented.

## FROM FIELD AND STUDY

**Two Stragglers on the Oregon Coast.**—*Plectrophenax nivalis nivalis*. Snow Bunting. On December 31, 1912, Mr. O. J. Murie collected one of these birds on the ocean beach at Netarts, Oregon. It was alone and no others were seen during ten days hunting in this vicinity.

*Salpinctes obsoletus obsoletus*. Rock Wren. On December 27, 1912, Mr. Murie collected a Rock Wren where it was running about over the drift-wood on the beach at Netarts. This is the first record, to my knowledge, of this wren occurring on the coast of Oregon, and the record in midwinter makes it doubly interesting.

Mr. Murie has kindly allowed me to publish these notes.—STANLEY G. JEWETT, Portland, Oregon.

**Nesting of the Band-tailed Pigeon.**—On August 11, 1913, while on a fishing trip to Bear Creek, the stream that empties out of Big Bear Lake in the San Bernardino Mountains, I accidentally discovered a nest of the Band-tailed Pigeon (*Columba fasciata fasciata*). The bird was flushed from the nest which was found to contain one nearly fresh egg. I waited for some time but the bird did not return to her nest. The nest was situated about ten feet up in a small oak tree, growing among pines on a very rugged mountain side at probably 5,000 feet altitude. The nest was a very flimsy affair, similar to the nest of the Mourning Dove but a trifle larger, and was composed of dry oak twigs. As this date of nesting seemed to me to be unusual I thought it of especial interest. The egg was collected and is now in my possession.

On this trip I only noted two other individuals of this species, one near the mouth of the Santa Ana Canyon and the other at the In-take in the same canyon.

During the summer of 1912 these birds were very common at Glenn Ranch Resort, Lytle Creek Canyon, San Gabriel Mountains, elevation about 3,500 feet. They were most common during August and the early part of September and were found feeding on the elder and coffee berries. This summer the birds were there only in limited numbers, although the feed was apparently more plentiful than in 1912.—WRIGHT M. PIERCE, Claremont, California.

**Late Nesting of Certain Birds in Arizona.**—I believe we collectors of eggs are inclined to stop active field work too early in the season, and thereby we miss a good many interesting and valuable finds. Last year I noted in the columns of THE CONDOR several late nestings and have several more to report for the season of 1913. My work this year has kept me in the Huachuca Mountains since the middle of July and I have made the following "finds":

Mearns Quail (*Cyrtonyx montezumae mearnsi*) were found nesting regularly during August. Several nests were shown to me by Mexicans. Fresh eggs were found as late as August 22, when I collected a set of eleven. Newly hatched young were found August 17, when a nest was visited which the preceding day held thirteen eggs. About 8:30 A. M. on the 17th we made a very careful approach and were rewarded by a beautiful sight. The male sat in the entrance of the nest with his head ducked down, while from between one wing and his back a little striped head protruded. Stooping I looked into the nest and there sat the female with one small chick on her back and a row of them poking their heads out all around her. This picture lasted but a moment for both parents fluttered away and the young crawled off into the grass and among the rocks. They were too small to walk, but crawled along with their chins on the ground. In a few moments they were well hidden and the nest held but the remains of thirteen broken egg shells. The last nest with eggs was found September 5 and held seven eggs on the point of hatching.

Another species nesting regularly during August was the Scott Sparrow (*Aimophila ruficeps scotti*). The last set was taken August 15 and the eggs were nearly fresh. A set of three Arizona Hooded Oriole (*Icterus cucullatus nelsoni*) was taken July 29. Incubation had proceeded about one-half. On September 2 a set of seventeen Scaled Quail (*Callipepla squamata*) was brought to me with eggs in varying stages of incubation, from about fresh up to some far advanced. As these were laid during a rainy period I am inclined to think that the bird began to sit as soon as the first few eggs were laid, which would account for the great variation in incubation.

On August 25 I noted a family of three Arizona Jays (*Aphelocoma sieberi arizonae*) as yet unable to fly. April is the regular month for the nesting of this species. On July 4, while looking for Sulphur-bellied Flycatchers' nests, I found a set of four almost fresh eggs of the Ant-eating Woodpecker (*Melanerpes formicivorus formicivorus*). Other nests of this species held young large enough to fly, or had already been deserted by the young. On August 11, I collected a set of three eggs of the Canyon Towhee (*Pipilo fuscus mesoleucus*) with incubation well begun. I have taken this species as late as October, however.

The late nesting of the Mearns Quail and Scott Sparrow may be accounted for by the fact that our rainy season begins about July 10, and the weed and grass seeds become more plentiful thereafter. Mearns Quail shot in September had pieces of acorn kernels in their crops. The late nests of the other species must be considered as individual eccentricities.—FRANK C. WILLARD, Tombstone, Arizona.

**The Sabine Gull in the Santa Barbara Channel.**—On August 11, 1912, I saw a flock of eight or ten Sabine Gulls (*Xema sabini*) in the Santa Barbara Channel, about ten miles from Santa Cruz Island. On August 1, 1913, I saw another flock between Santa Cruz Island and Santa Barbara; and again on August 4 and 7 a flock was sighted. On the last

date the birds were seen about five miles from Santa Barbara. This would indicate that this species is quite a common late summer transient through these waters.—HOWARD W. WRIGHT, *Stanford University, California.*

**Nesting Notes from San Diego County.**—On March 27, 1913, a pair of Pacific Horned Owls were found nesting about two miles down the Sweetwater River from Dehesa and upon rapping upon the tree the female was flushed. The three young were rather large and partly feathered. As the old bird left the nest a pair of Red-bellied Hawks set out in pursuit. One continued to chase the old owl, while the other hawk returned and robbed the nest of one of the young owls. This was torn to pieces and eaten in a nearby tree. The day before I had robbed the Red-bellied Hawk's nest of three eggs. This was located about a quarter of a mile up the river. On returning to the locality a week later there was only one young owl left.

On July 21, 1913, at Lemon Grove, while picking some fruit in a nearby orchard, I was surprised to hear the "purt, purt" of an Arizona Hooded Oriole in an adjoining palm tree. I was still more surprised on finding a partially completed nest swung to the underside of a lower leaf of the same palm. July 30 the nest contained one egg, with the female sitting. On August 4 I took the nest and 3 eggs, the latter varying considerably in incubation. This is the best marked set I have ever seen.

August 7, 1913, at Lemon Grove, a neighbor called my attention to a nest of Western Mockingbird not over twelve feet from his kitchen door and right over the sidewalk. It was in a cypress tree ten feet above the ground and contained four fresh eggs which I took. This was the fourth laying of this year known to me. The first, of four eggs too far advanced to blow, was handed to me by the same man April 9. It was taken from an ornamental pine tree near the front door. The middle of May I saw the old birds feeding young, and again the second week in July I saw them feeding young; but I think a pet cat caught this brood.—LAURENCE M. HUEY, *San Diego, California.*

**Dry Season Notes.**—In this year of unusual drought the fish-eating birds are having a lean time of it in the interior and are often hard pushed to make a living. Wild ducks are to be seen frequenting shallow, alkaline ponds that they would turn up their noses at in ordinary years, and dabbling in the foul mud for what insect life there may be there. Farallon Cormorants (*Phalacrocorax auritus albociliatus*) and White Pelicans (*Pelecanus erythrorhynchos*) cruise about in a restless manner, endeavoring to "fill up their beak with food for a week" in the most unpromising places; while the herons scatter far and wide in hopes of picking up a stray minnow or frog here and there.

Ordinarily our rivers overflow their lower banks in the spring time, and the carp, minnows, etc., spread out into the submerged lowlands to spawn. The result of this is that as the waters recede in summertime the young fish collect in the small sloughs and depressions. The areas of the water surfaces shrink from day to day until finally there are left only small, evil-smelling pools so shallow that one can see the backs of the small fry sticking above the surface. The fishes are so numerous that they may be said to actually swarm. During this period the heron families grow fat in such spots, with no exertion whatever! But this year there has been no overflow, and those fish that spawned did so only in deep water; so the poor herons have to get out and "hustle" for a living, taking a chance at catching a few stray fish that are foolish enough to come into the shallow water near the banks of the rivers.

I was much astonished a few days ago, on September 19, 1913, to be exact, to see three California Brown Pelicans (*Pelecanus californicus*) come sailing over our house and light on the lake a few yards away. This is the first time I have ever seen this species in the interior, as it seems to stick to the seacoast almost exclusively. The birds were so near that there was no possible chance of making a mistake as to their identity.

Where the water-loving species of blackbirds nested this year I do not know, but certainly they have not been with us in their usual numbers, doubtless because there were no tule ponds or overflow lands for them to nest in. The Bicolored Blackbird (*Agelaius phoeniceus californicus*) did breed to some extent in the dry weeds and small willows, but were not at all numerous at nesting time.—JOSEPH MAILLIARD, *Rancho Dos Rios, Stanislaus County, California.*

**Note on the Guadalupe Caracara.**—During the past summer Captain Charles E. Davis, of Los Angeles, has made several trips to Guadalupe Island, off the coast of Lower California, for the purpose of taking moving pictures of the sea elephants found around the island, and also to capture alive some of the younger animals. In a conversation with the

writer he made a statement which seems of sufficient interest to repeat. Hearing that the island had been visited by two men who had killed several of the sea elephants, which he had been at some pains to protect, he at once hastened to the spot to ascertain the amount of the damage. On landing on the beach where the killing had been done, he found the place reeking with the decomposed remains of five or six of the animals. He had already remarked to me upon the noticeable scarcity of birds along the shore of the island, as compared with the abundance of water birds elsewhere, but he further stated that as he landed several gulls flew up from the carrion, and with them two or three dark-colored birds, which he described as apparently crosses between an eagle and a turkey buzzard. This remark, coming from a man ignorant of a caracara, without prompting from myself, and not dwelt upon by him afterward, is at least suggestive of the possible persistence up to the present time of the supposedly extinct Guadalupe Caracara (*Polyborus lutosus*).—H. S. SWARTH, Museum of History, Science and Art, Los Angeles, California.

**Sharp-shinned Hawk Nesting in Arizona.**—On May 30, 1907, I collected a set of four eggs of the Sharp-shinned Hawk (*Accipiter velox*) from a nest in a small fir tree in Miller Canyon, Huachuca Mountains, Arizona, at an altitude of about 6,800 feet. Incubation was begun. The female sat very close and hung around close by while I collected the egg.—FRANK C. WILLARD, Tombstone, Arizona.

**Note on the Ashy Petrel.**—On August 3, 1913, I visited the Painted Cave on Santa Cruz Island and made a thorough search for the "nests" of the Ashy Petrel (*Oceanodroma homochroa*). I could find nothing but a few egg shells, which would indicate that the birds either bred earlier, or else did not breed there at all this season.—HOWARD W. WRIGHT, Stanford University, California.

**Three New Birds from Eastern Oregon.**—In working over a collection of bird skins from Harney County, Oregon, collected by Mr. Wm. L. Finley during the summer of 1908, I found specimens of the following birds which I believe have never been put on record as occurring in this State. The identifications were made by Mr. Joseph Grinnell and Mr. H. C. Oberholser.

*Empidonax griseus*. Gray Flycatcher. Two adult specimens in worn summer plumage taken in the open sagebrush country near Wright's Point, about fifteen miles south of Burns, on June 25, 1908.

*Amphispiza bilineata deserticola*. Desert Sparrow. Two adult males taken at Wright's Point on June 24 and 25, 1908.

*Hylocichla fuscescens salicicola*. Willow Thrush. One adult male taken in the willows along Silvie's River near Burns on June 24, 1908.—STANLEY G. JEWETT, Portland, Oregon.

**Spotted Owls in San Diego County.**—On June 22, 1910, while hunting on Palomar Mountain, San Diego County, California, a strange object was seen moving in an oak tree about sixty feet above the ground. On closer observation its identity became more uncertain; although I whistled several times it did not move. I finally decided to shoot and was astonished at the downfall of a dried gray-squirrel carcass. The animal had evidently been killed or had died lying crossways on a large limb. Its tail waving in the wind was the feature which had attracted me.

At the same moment of the gun's explosion a large bird was seen to flop on the next limb directly above where the squirrel's dried carcass had hung. Not being able to recognize the bird I decided to watch, and after a few minutes an owl was seen to cautiously peep over the edge of the limb. It eyed me first with one black eye and then the other. I shot it, and on picking up the specimen was surprised to identify a full-plumaged Spotted Owl (*Strix occidentalis occidentalis*).

The following year, 1911, on the same date, June 22, and in the same locality, a party of us had planned to go to a nearby hillside where tiger lilies were known to grow, and, being rather on the lookout for specimens, I took my gun. All of us were busily engaged in digging the bulbs of the lilies, when a sudden "ow-w-w-ow" brought me to my feet, gun in hand, and after cautiously peering in all the surrounding trees a Spotted Owl was seen perched near the top and very close to the trunk of a small cedar tree about forty feet high. Not wishing to shoot the bird to pieces my aim was made a little to the side. The shot dropped a wounded bird and while I was occupied in extinguishing its life a clamorous call from a member of the party proclaimed the location of a second owl. I quickly dropped the first bird, grabbed the gun and soon had two owls to my credit. The last one was also perched near the trunk and very close to the top of a small fir tree about 60 feet high.

These birds were in moult, one having a single tail feather, and the other none at all; they were a pair and probably had raised a brood early in the spring. Further examination made positive that this spot had been their roosting place for some time past. The stomachs of these birds were entirely empty, giving no evidence of what their food might have been in this locality.—LAURENCE M. HUEY, San Diego, California.

# THE CONDOR

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## EDITORIAL NOTES AND NEWS

At the recent congress of the American Ornithologists' Union, in New York City, November 11, distinction was conferred upon three Pacific Coast men. Joseph Mailliard was elected Fellow, and W. Lee Chambers and George Willett were elected Members. Mr. Mailliard's election is the first to the class of Fellows, as far as this coast is concerned, since that of Walter K. Fisher in 1905.

Mr. L. E. Wyman, recently of Nampa, Idaho, has removed to Los Angeles, where he is in charge of the work of excavating the fossils at the Rancho La Brea, for the Museum of History, Science and Art.

The Cooper Ornithological Club has been honored through the appointment of Mr. George Willett of Los Angeles as Inspector under the new Federal Migratory Bird Law. In explanation it may be said that the plan worked out by Dr. T. S. Palmer and those others of the Department of Agriculture in whose hands rests the administration of the law, involves the division of the United States into thirteen districts, each to be in charge of an experienced inspector and a force of about 25 picked men selected by the state game commissions. The California District, of which Mr. Willett is to be Inspector, includes also Nevada and Arizona. The task of putting the new law into effect concerns every State in the Union and is one of the greatest ever attempted in the history of game protection. We congratulate Mr. Willett upon his appointment, and wish him all success in his new office.

The friends of Mr. Joseph Dixon are much concerned over his failure to return home this fall from his Alaskan trip, as expected. It is now practically certain that the *Polar Bear*, the vessel in which Dixon's party was exploring the arctic coasts of Siberia and Alaska, has been frozen in for the winter somewhere east of Point Barrow. No word is likely to be received from the party before the ice breaks up, next July or August. Dixon will certainly have abundant opportunity to study and collect whatever animal life is available around his winter quarters. It is to be earnestly hoped that no mishap or extraordinary hardship overtakes his party, and that he returns to us in due time with sufficiently valuable results to compensate him for his long and involuntary isolation.

Attention of all Cooper Club members is hereby directed to our Business Managers' announcements on inside front cover of this issue. Material and prompt response to their requests is recommended as being in line with the continued success and activity of the Club and its publications.

The Biological Survey announces with deep regret the death of Major John Fletcher Lacey, a member of the Advisory Board on Migratory Birds. According to press dispatches, Major Lacey's death, due to apoplexy, occurred on September 29, 1913, at the age of 72, at his home in Oskaloosa, Iowa.

During the sixteen years in which he served in Congress, 1889 to 1891, and 1893 to 1907, he was connected with most of the measures relating to conservation. One of the earliest statutes which he assisted in passing was the Act of May 7, 1894, protecting birds and animals in the Yellowstone National Park. As author of various bills protecting game he early became known as the "Father of Federal Game Legislation". Following are some of the more important measures for the protection of wild life which he introduced and which are now on the statute books: The act which bears his name, regulating interstate commerce in game, 1900; the first Alaska game law, 1902; the act creating the Wichita Game Refuge in Oklahoma, 1905; the appropriation for the herd of buffalo in the Yellowstone Park, 1905; the National Monuments Act, 1906; the law protecting birds on bird reservations, 1906.

During his chairmanship of the House Committee on Public Lands in 1904, he became deeply interested in the first bill for the protection of migratory birds, introduced by Hon. George Shiras. Later, after his retirement from Congress, he devoted considerable study to this question and proposed certain amendments in what is sometimes known as the Lacey Modification of the Migratory Bird Bill, introduced in the House by Hon. John W. Weeks on May 28, 1909.

His keen interest in game legislation continued after his retirement to private life and on at least two occasions he was actively interested in the passage of important measures. Early in 1909 he appeared before the Committee which codified the penal laws and

a few days before the bill passed took part in putting the finishing touches on the provisions of the Lacey Act incorporated in that Code. Later he took an active part in securing an increase in the appropriation for the maintenance of the buffalo herd in the Yellowstone Park.

In recognition of his interest in the protection of migratory birds he was recently appointed a member of the Advisory Board and was to have been present with other members of the committee at the hearing in Omaha on August 6, but was prevented by absence in California. Always interested in any measure for the conservation of wild life and ready to assist to the utmost of his ability, Major Lacey was a staunch friend of the Department, an earnest advocate of wild life conservation, and a singularly effective worker in this field. It is unfortunate that he could not have lived a few days longer to have learned the outcome of the measures for the protection of migratory birds and the plumage clause in the Tariff Bill, in which he was much interested.—T. S. PALMER, Assistant Chief, Biological Survey.

#### PUBLICATIONS REVIEWED

A REVISION OF THE GENUS *CHAEMEPELIA*. By W. E. CLYDE TODD. (Annals of the Carnegie Museum, viii, May 8, 1913, pp. 507-603).

This is a careful and thorough revision of a difficult group of birds, and one leaving little to be desired in manner of treatment. The author had at his disposal "no less than nineteen hundred and twenty specimens of this genus, representing all of the known forms, and including a number of types", a quantity of material sufficing for a satisfactory solution of most of the problems involved.

Five species are recognized in the genus, *passerina*, *minuta*, *buckleyi*, *talpacoti*, and *rufipennis*. A sixth species, *Columba cruziana* Prevost and Knip, generally placed in the genus *Chaemepelia*, is here made the type of a new genus, *Eupelia*. *Chaemepelia* and *Eupelia*, with five other genera, are placed in the subfamily Claraviinae, corresponding to Salvadori's Peristerinae. *C. passerina* is divided into sixteen subspecies, *minuta* into two, *rufipennis* into two, while *buckleyi* and *talpacoti* each remains undivided. Three new South American subspecies of *passerina* are designated, *parvula* from central Colombia, *nana* from western Colombia, and *quitensis* from Ecuador; and *C. minuta claeodes* is described from Costa Rica.

In the treatment accorded the North American forms of *C. passerina* certain changes are noted from the arrangement in the A. O. U. Check-List. The bird of the southeastern United States once more receives the name of *passerina*; *C. p. bermudiana*, of Bermuda, is relegated to the synonymy of *C. p. bahamensis*,

which is itself considered as but poorly differentiated from the Cuban bird.

The critical, detailed discussions of the various forms contain much that is interesting and suggestive, and will undoubtedly prove most helpful to future workers in the group. The exceedingly thorough bibliographical research carried out by the author has borne its fruits in the satisfactory solution of various nomenclatural puzzles of long standing.

The paper closes with a table of the average measurements of the various forms, and a list of the skins examined, with the source of each specimen.—H. S. SWARTH.

A STUDY OF THE NESTING BEHAVIOR OF THE YELLOW WARBLER (*Dendroica aestiva aestiva*). By HARRY C. BIGGLESTONE. (Wilson Bulletin, xxv, June, 1913, pp. 49-67, 5 tables).

In the *Wilson Bulletin* for June, 1913, is to be found a most notable article on the nesting behavior of the Eastern Yellow Warbler. The paper records observations made by Harry C. Bigglestone from a blind near the Macbride Lakeside Laboratory on Lake Okoboji, Iowa, during the summer of 1912. The nest was discovered before the set of eggs was complete and after hatching was watched continuously during hours of daylight until the young had flown. During the eight days involved the author received relief from other students in the laboratory at meal times and other periods of the day, thus lightening the tediousness of the task.

The patience displayed was certainly rewarded by the results obtained, for the reviewer can think of no paper which has furnished so much valuable information as to the details of the nesting behavior of any single bird. Even such minute details as the way in which the hatching bird frees itself from the shell and the time taken for this operation are recorded.

By marking the young warblers with colored strings tied about the leg, the author was able to keep track of the amount of food each was fed. Tables show the number of visits made by the parents, the distribution of food by days, and the distribution of food to the different nestlings. A total of 2373 visits with food were made, even though feeding was left entirely to the female during the last few days. The food was found to be made up entirely of insects, "green worms" being the largest item.

Under the heading of sanitation are recorded many interesting facts regarding the removal of excreta. For the first few days the parent birds usually ate the excreta, but later it was carried away. The egg-shells were all eaten. A table gives the total number of excreta sacs, together with their disposal.

Miscellaneous notes bearing on the capture of one of the young by a garter snake, the stereotyped method of approach to the nest used by the parents, notes as to the behavior of the nestlings, and a summary, conclude the paper.

The nest and nestlings being under continual observation for 144 hours and 53 minutes established an enviable record. If there are other ornithologists seeking for something difficult to do and something much worth while, let them go and do likewise.

Students of animal behavior will be interested in the suggested modifiability of behavior brought about by artificial conditions. Laboratory methods for the study of animal behavior are greatly emphasized at the present time. Such a paper as this, however, makes us ask the question whether first-hand information gained as this was is not vastly superior and more dependable than similar information which could have been gained by laboratory experiments. The artificial conditions which surround laboratory experiments on higher vertebrates, even though proper controls be used, usually make the results less dependable. The field method has the added advantage also of a comparatively small equipment.

The limited amount of available information regarding the life-histories of our song birds becomes apparent only to those who attempt to search into the subject. To those who appreciate the dearth of material such papers as the one before us give encouragement and bring hopes that their advent but presages increased activity in this field.—H. C. BRYANT.

**LIFE ZONES AND CROP ZONES OF NEW MEXICO.** By VERNON BAILEY. (North American Fauna No. 35, Sept. 5, 1913, pp. 1-100, pls. I-XVI, 6 figs. in text).

A great deal of valuable information is concentrated in the small compass of this publication, which is a brief but comprehensive survey of the subject. The life zones found in New Mexico are Lower Sonoran, Upper Sonoran, Transition, Canadian, Hudsonian, and Arctic-Alpine. Each is treated separately, first with a general account of the nature of the country covered, this followed by nominal lists of the mammals, birds, reptiles, and plants peculiar to the division, and similar lists of the fruits, vegetables and other crops most apt to thrive. Following this classification of the life zones is a series of descriptions of the more important mountain ranges of the state.

The ornithological matter contained in the publication is limited to nominal lists of the breeding birds of each zone, and similar lists of the species occurring in the various mountain ranges. Transients and winter visitants

are not included, as having no bearing upon the subject of the report. We understand, however, that the animals of the state are to receive more detailed attention in future papers, which they certainly deserve, as pertaining to a portion of North America which hitherto has not received its fair share of attention from naturalists.

More explicit statements of the manner of occurrence of certain species may be expected to explain what at present appear to be some rather puzzling discrepancies in the status of the same birds in New Mexico and at points farther west. Thus the Scott Oriole (*Icterus parisorum*) is here listed as Lower Sonoran, while in the experience of the present reviewer it is in Arizona and California most emphatically Upper Sonoran. Similarly the Cooper Tanager (*Piranga rubra cooperi*), given as Upper Sonoran, is in Arizona a characteristic bird of the Lower Sonoran wooded river beds, while the White-rumped Shrike (*Lanius l. excubitorides*), also here considered as Upper Sonoran, is in Arizona and California at least as abundant in the Lower Sonoran valleys. There are other similar cases.

The doubtful inclusion of the Calliope Hummingbird (*Stellula calliope*) among the breeding birds of the Canadian Zone of New Mexico is probably another instance of the extension of a hummingbird's breeding range from the appearance of migrating individuals, usually adult males, at distant points before the breeding season is fairly over.

On the whole, however, these lists of the birds, as well as those of the other components of the fauna and flora of the state, the carefully worked out results of extensive and painstaking field work by an admitted authority on the subject, may be taken as practically final. The above comments by the reviewer on certain species are directed not as criticisms of statements made, but rather to call attention to the various conditions under which species have been found in different portions of their habitats.

The numerous plates and figures are well selected to illustrate the nature of the country, while the accompanying colored map of the life zones of the state, of unusually large size, is apparently most carefully worked out as regards the finer details.—H. S. SWARTH.

**BIRD STUDY NOTE BOOK.** By CLARA COZAD KEEZEL. (Published by the author, Garnett, Kansas).

This title appears on the cover of a little note book carefully prepared to meet the needs of the growing number of students interested in bird life. It is arranged in columns appropriately headed for entering the name of the bird, date of arrival, residence (winter,

summer, or permanent), conspicuous colors or markings, principal food, kind and location of nest. There then follows a larger space in which to enter any notes of special interest in regard to habits, song, nesting, economic value, etc., of the bird observed. The first page of the book contains a brief preface stating its aim and giving a short bibliography on birds of particular value in school work, while the last page contains pertinent suggestions for bird study in schools.

By adhering to these few most important topics, the author has been able to produce a book which is concise and simple, yet of sufficient size to hold at least two years' records, so that interesting and useful comparisons may be made.

The Bird Study Note Book is the outcome of several years' experience on the part of the author, and we are glad to learn that it has been successfully used in one of the Kansas schools for the past four years. We believe, with the author, that the school room is, perhaps, the most important place to disseminate knowledge of the value of bird life, and to arouse interest for the protection necessary to preserve our native birds.

Although this note book is particularly adapted and prepared for the use of pupils of intermediate and grammar grades, it is well worthy of recommendation to any bird student who realizes the value of keeping actual records from day to day.—MARGARET W. WYTHE.

THE BIRDS OF VIRGINIA | by | HAROLD H. BAILEY | [vignette] | with fourteen full page colored plates, | one map, and one hundred and eight | half-tones taken from nature | treating one hundred and eighty-five species and subspecies: | all the birds that breed within the state. | 1913 [our copy received September 1] | J. P. Bell Company, Inc. | Publishers | Lynchburg, Va. | 8vo, pages xxiii + 362; illustrations as above.

Our fellow Cooper Club member, and former Californian, Harold H. Bailey, has "done us proud" in putting out one of the most attractive bird books of the year. The above transcript of the title gives a good idea of the nature of the work as regards illustrations. The text deals in a concise way with those birds which have been found nesting within the borders of Virginia.

Naturally, as being an enthusiastic oologist of the old school, Bailey's chief effort is to present his readers with important facts in regard to the nesting habits and eggs of the birds dealt with. Still, there is much useful information of a more general nature, especially as regards economic status, all of which is selected with a view to securing popular interest in bird study in a state in which field

naturalists are apparently few in number.

Of course the reviewer is able to find points to criticize. Has there ever appeared a bird book entirely above *someone's* criticism? The most serious fault to be found with the book in our minds concerns not its ornithology, but its grammar — which, frankly, is in places atrocious! This fault could have been obviated by recourse to editorial supervision, and it is to be hoped that this will be attended to in future editions.

One other possible criticism is the inclusion of photographs of western subspecies or even species (as the burrowing owls on page 138), with nothing to indicate to the uninitiated that they are not from Virginian subjects.

This western tang is more pleasingly evidenced on page 86, where is presented the reproduction of a photograph by W. Otto Emerson showing a typical collector's camp, with that now long lamented ornithologist, Walter E. Bryant, in characteristic attitude. Many of us "middle-aged" bird people share with Mr. Bailey the fondest of recollections of the days when we gained knowledge and inspiration from W. E. Bryant.

As to the facts set forth in the work under review, Harold H. Bailey is absolute authority in his field. And it is needless to say that no well conducted library of ornithology will long remain without a copy of his "Birds of Virginia".—J. GRINNELL.

CATALOGUE OF A COLLECTION OF BOOKS ON ORNITHOLOGY IN THE LIBRARY OF JOHN E. THAYER; compiled by Evelyn Thayer and Virginia Keyes (Boston, privately printed, 1913; 8vo, 188 pages. Copy received September 8).

Approximately 1200 titles appear in this catalogue, this large number suggesting the probability that Mr. Thayer's is the most complete private ornithological library in America today. *Auduboniana* are excellently represented; and there are many other fine things, such as Wilson's *Aves Hawaiianis*, the almost complete works of Gould, etc., etc.

Bibliographically the Thayer Catalogue is not above criticism. There is lack of uniformity in treatment, and not a few errors are in evidence. In a number of cases the titles of separates are entered as if they were individual works, without indication of their true connection. However, the Catalogue is evidently not at all intended as a technical exposition of its subject.

There is a growing present-day tendency towards the adoption of book-collecting as a mind recreation on the part of men of means who have also a scientific trend of thought. In some cases the attention of the collector is absorbed wholly by books as objects of ac-

quisition; that is, animal "specimens" are not included. This tendency is to be looked upon with favor, and should be encouraged in every practicable way.

Books, as records of facts, are doubtless far more lasting than "specimens." The latter rapidly deteriorate with time and at best are only partial records, even though originally essential for the accuracy of much of the printed record.

Incidentally a distinct service is rendered the cause of science by private book collectors, in that rare volumes are gathered from obscure and unappreciative sources, and usually renovated by re-binding as well as being housed under the safest of conditions. The lives of these volumes thus become insured for much longer time than would likely otherwise be the case. Sooner or later, too, private collections find their way into public repositories where the field of their usefulness widens.

Another factor worth considering is that collectors of books on ornithology nowadays have the satisfaction of knowing that what money they put into their hobby, if discriminately spent, has been well invested; the market value of even some quite recent publications has doubled or even trebled within a very few years.

Mr. Thayer's catalog is an incentive to interest on the part of others along this line, and we welcome it. The reviewer, for instance, has taken great pleasure in running over the titles in comparison with the contents of his own modest collection.—J. GRINNELL.

THE AUK.—The July number of *The Auk* sustains the usually high character of that magazine as a record of ornithological discovery and scholarship. The latter element predominates in Stone's review of William Bartram's bird migration records. The writer comes to the conclusion, based on an exhaustive study of Bartram's journals, that in the case of 26 species of the commoner birds of Philadelphia no appreciable change in the time of their arrival has taken place in the past century. This conclusion, necessitated no doubt by the data at hand, is a little surprising, not to say disappointing, for we had supposed that the unquestioned "northward trend of species" would have shown itself in noticeably earlier spring arrival as it has in extended breeding ranges.

Forbes' review of Brewster's observations on the flight of gulls (recorded in *The Auk*, for January, 1912) is little more than a dogmatic reassertion of the mathematical *impasse* which has always ended the discussion of this subject. As the author himself admits, his general denial of the possibility of the advantageous 'resolution of forces' by a bird glid-

ing against a horizontal wind does not account for all the factors in Mr. Brewster's record. It does not account, namely, for the behavior of birds so far removed from the ship that ascending currents caused by the passing ship could not have been a factor. This difficult subject is not yet susceptible of explanation, but we do need further and exhaustive records of fact.

Careful, scholarly work appears in Cameron's continuation of "Notes on Swainson's Hawk in Montana" and in Tyler's account of "A Successful Pair of Robins." By the way, what an inordinate amount of attention is being paid these days to excrementation and the parental disposal of faecal sacs! The magazines are full of it. It is all very necessary, we suppose, but one cannot help hoping that the values of this particular phase of paedolatry may be settled presently so that we can pass to pleasanter topics.

Miss Sherman's painstaking study of "The Nest Life of the Sparrow Hawk" again caps the climax of scholarly research. We have in Miss Sherman a shining example of how purposeful leisure may be profitably employed in the further consideration of some of the most familiar ornithological subjects. We hope to see one day from her pen a collected series of these stimulating bird studies.

Scholarship again is the note of Swarth's review of "The Status of Lloyd's Bush-tit as a Bird of Arizona," and his studies seem to establish the fact that *Psaltiriparus melanotis lloydi* is not a bird of Arizona, and that the bird once described as *P. santaritae* was a juvenal phase of *P. plumbeus*.

Three faunal lists and a brief anatomical article conspire with "General Notes" and extended book reviews to make this a most creditable number, while Abbott H. Thayer's "periodical warning" that both he and the theory are alive and cheerfully defiant gives that touch of piquancy which we relish in the staidest of journals.—W. L. DAWSON.

BIRD-LORE has come to be a magazine of which its sponsors may well be proud, and its bi-monthly visits, indispensable now as always to conservationists, are an honest joy to all bird students whether veteran or amateur. Florence Merriam Bailey contributes the leading article to the September-October (1913) number and it is as chock full of interest as it is of information concerning the Long-eared Owl. In our opinion Mrs. Bailey is one of the most gifted and refreshing interpreters of bird-life now before the public. She has in addition to keen and disciplined powers of observation a vivacious style and that sprightly quality of imagination which makes it really worth while for us to view life through her eyes. This owl

study exhibits Mrs. Bailey in her happiest vein.

John Woodcock shows a splendid photograph of Sharp-tailed Grouse obtained by him in Manitoba and we rejoice with him, in a page and a half of print, that this difficult and decreasing bird has been brought to camera. Maunsell S. Crosby has a few crisp notes on a pair of Holboell Grebes captured and photographed at Rhinebeck, N. Y., and Arthur A. Allen of Ithaca details an entertaining experience with a pair of nesting Blue-headed Vireos.

The Migration and Plumage studies are concerned this month with the Harris and the Golden-crowned Sparrows. In this connection we are pained to note a glaring inaccuracy in the descriptive title of the colored frontispiece. The plate in question is a well executed piece by Louis Agassiz Fuertes depicting an adult and an immature bird of each of the above-named species. The adult in each instance is labelled "adult male," and the immature bird (whether male or female, matters little) is declared to be an "adult female." Of course this blunder is not chargeable to Fuertes who knows his birds as we know our letters, nor to Chapman who refers to the figures correctly in his text further on. It must be due, therefore to some irresponsible third party to whom this important task was entrusted. In a magazine which caters especially to youth and from which our young people are likely to receive impressions which cannot be shaken off, such a misleading signboard at the beginning of the path is peculiarly unfortunate.

In reviewing our own CONDOR (July-August, 1913) the veteran critic, "T. S. P.," to whom we owe an ancient debt of gratitude for generous consideration and liberal praise, devotes considerable space to Dawson's article, "The All-Day Test at Santa Barbara" and expresses his dissatisfaction with methods and tendencies therein displayed. In the first place he deprecates the use of the automobile as an aid to bird study, though whether he considers that this device takes an unfair advantage of the birds or whether he harbors the suspicion, in common with certain clergymen, that "one of the automobile crowd" must, *ipso facto*, be addicted to high balls and therefore liable to see birds double, our reviewer fails to state. Moreover, he suspects the "accuracy of results when Sandpipers, Linnets and Redwings are recorded by hundreds, when only eight meadowlarks and four English Sparrows were observed in comparison with 40 Black-headed Grosbeaks." This is amazing, perhaps, to one not thoroughly conversant with local conditions at Santa Barbara; nevertheless we need only to remind "T. S. P." who was a Californian

that Sandpipers, Linnets and Redwings are precisely the birds one does see by hundreds; that Meadowlarks are busy feeding first broods by May 5th and so are silent and secretive; that Black-headed Grosbeaks were excessively abundant last spring; and that presumably because of the pre-occupation of the field by Linnets, the English Sparrows have never found effective or numerous lodgement in Santa Barbara. One has actually to hunt for them. Beyond this, however, there seems to be a real ground of misunderstanding as between Palmer and Dawson as to what constitutes the proper object of an all-day test. Dr. Palmer is influenced by the Bird-Lore census standards where enumeration of *individuals* has always been deemed the important thing. Dawson has always stood for the enumeration of *species* as the important thing in these all-day tests and he designated the results so obtained as *horizons* some time before "bird censuses" were talked of. The figures placed opposite the names in the CONDOR list were, therefore, approximate and not intended for summation, although the writer was, perhaps, at fault in not having so noted. That this is the ground of misunderstanding appears further. "Rather it would seem that combined observations of several persons in a definite area where each could take time to cover his territory thoroughly and follow up and observe the various birds, would give a better idea of the number of species and individuals present on a given date." No doubt, but that is to change essentially the character of the institution under consideration and to criticize it not for what it is but for what it is not. An extended and painstaking census is one thing, and a very good one in its way, but a "bird horizon" is a different thing and also very good. In a bird horizon one tests not only the resources of a given region but he tests his own resources, his ability to find the birds and to recognize them when found under certain definite limitations of time. It is, confessedly, a sort of sporting proposition, bearing about the same relation to the year's work in ornithology that horse racing does to plowing. Plowing is doubtless to be commended both in man and beast, nevertheless the evolution of the horse is supposed to owe more to the incentive of the track than to the ancient furrow. And, anyhow, bird horizoning as an occasional indulgence does give zest to the ornithological pursuits whether detailed or general.

The value of such a magazine as *Bird-Lore* in bringing new talent to the front is clearly shown in an article describing "A Pet Road-runner," by George Miksch Sutton, a lad of 15. Here is a clever, promising piece of work and we confidently expect to see "Mas-

ter" Sutton take rank as "Mr." among the trained reporters of bird life.

The bird biography for this issue is by Witmer Stone and is concerned with the Catbird. Mr. Stone does his four page stunt conscientiously and hits off the character of the bird with scientific accuracy as well as verbal distinction. The economic homily at the end of his treatment is pleasantly sugared and his concluding paragraph of appreciation leaves us with hearts thoroughly warmed towards his hero.

Stone knows his Catbird. We wish we could say as much for the artist who paints him. Bruce Horsfall's plate of the "Catbird" is just another colored representation of two bird-like objects—nothing more. They are not "Catbirds." Paint them brown and they might pass for languid wrens. Paint them green and they would do for Warblers badly stuffed. Candidly now—and however regretfully—one wonders why Horsfall persists in trying to paint birds.—W. L. D.

#### MINUTES OF COOPER CLUB MEETINGS

##### SOUTHERN DIVISION

OCTOBER.—The regular monthly meeting of the Southern Division was held at the Museum of History, Science and Art, Thursday evening, October 30, with President Law in the chair and the following members present: Messrs. Chambers, Daggett, Grey, Howell, Judson, Law, Miller, Morcom, Rich, Snyder, Swarth, Van Rossem, Willett, Wood, and Wyman.

The minutes of the last meeting were read and approved, followed by the reading of the Northern Division minutes for October. The following were elected to membership in the Club: W. C. Bradbury, Denver, Colorado; J. W. Eggleston, Los Angeles; C. B. Lastreto, San Francisco; H. A. Edwards, Los Angeles. New names submitted were: Allan J. Stover, Corvallis, Oregon, proposed by Geo. F. Sykes; E. F. Pope, Colonesneil, Texas, proposed by H. W. Carriger; Amelia Sanborn Allen, Berkeley, proposed by J. Grinnell.

At the request of Mrs. E. H. Husher announcement was made that the Mozart Theatre, 730 S. Grand Ave., Los Angeles, had agreed, by an arrangement with the Audubon Society, to exhibit moving pictures of birds during the last week of each month.

The action of the Northern Division in regard to the proposed conservation congress to be held in San Francisco in 1915 was ratified, and the president and secretary of the Southern Division were authorized to sign the letter which had been drawn up by the Northern Division's committee for transmittal to various institutions and individuals.

Business disposed of, Mr. Willett entertained the Club with some of the experiences of his past summer's work in southeastern Alaska. He exhibited skins of the Dixon Rock Ptarmigan and the Alexander Willow Ptarmigan, adults and young in summer plumage, and also a series of photos taken during the summer.

Mr. Wood told of a disastrous mortality to which he found nestling birds subject in the late summer in the vicinity of Prescott, Arizona. The blow-fly of the region was found laying its eggs on the newly-hatched young, the resulting larvae boring under the skin and there feeding on the living flesh. Mockingbirds were especially studied, though other species also were observed thus afflicted, and it seemed to be a common and widespread source of suffering to the late hatched broods.

Mr. Howell spoke briefly of his season's collecting in southeastern Arizona. Adjourned.—H. S. SWARTH, Secretary.

##### NORTHERN DIVISION

AUGUST.—A meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, Cal., on Saturday evening, August 9, 1913. Vice-president H. C. Bryant presided with the following members present: Messrs. Boyce, Clarke, Cooper, Emerson, A. K. Fisher, W. K. Fisher, J. Grinnell, and Storer. Mesdames Allen and Cooper and Messrs Belt, Parker, and Martens were present as visitors.

Dr. A. K. Fisher as speaker of the evening told of some of the work of the Biological Survey along the lines of economic mammalogy and ornithology. He first told of the work being done toward checking the increase of harmful rodents and of the results obtained in that work. Of particular interest to the members of the Club were his remarks on the work which is now being done in examining the stomachs of various species of birds. From these examinations the Survey has among other things determined the commoner food plants of the game birds and a plan has been formulated to establish farms for the propagation of these food plants so that the seed may be distributed to the various parts of the country. By this and other methods it is hoped that some of the now transient species may be induced to breed in local areas.

No business was transacted at the meeting. Adjourned.—TRACY I. STORER, Secretary.

SEPTEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 101, East Hall, University of California, Berkeley, on

September 23, 1913, at 8 p. m., with President Carriger in the chair and the following members present: Mrs. Burnham, Messrs. Bryant, Burnham, Camp, Carriger, Heinemann, J. Mailliard, Pemberton, Ray, Shelton, Storer, and W. P. Taylor. The meeting was open to the public and about one hundred visitors were present.

Mr. Oluf J. Heinemann spoke on "Bird Photography" and illustrated his remarks with numerous lantern slides. He described the methods used in photographing birds with fixed focus, view, and reflecting cameras. The various accessories useful in various situations were described and their uses explained.

Mr. Heinemann then showed a series of lantern slides made by himself and others of local birds. Among the pictures were those of the Grey-crowned Leucosticte and the California Pine Grosbeak which have appeared recently in *THE CONDOR*. A very good series of slides made by Mr. Heinemann on a recent trip to the Farallon Islands concluded the exhibition. The several species of cormorants, the Western Gulls and the California Murres were well represented in these views.

After the lecture the business of the meeting was considered. The minutes of the August meeting were read and approved and the Southern Division minutes for August were read.

Mrs. A. S. Allen was elected to membership. The names of Edwin S. Parker, 1737 Euclid Ave., Berkeley, Cal., proposed by J. Grinnell, and P. C. Dutton, 26 Litchfield Road, Stone Staffs, England, proposed by H. W. Carriger, were read.

Following a suggestion from H. S. Swarth, secretary of the Southern Division, it was decided to enter the names of new members only once in the minutes of each division and not twice as heretofore.

Mr. A. L. Cowell, Field Secretary for the California Bureau of Conventions and Societies, of the Panama Pacific International Exposition, was present and spoke to the Club on the matter of having as many as possible of the ornithological societies of the United States meet in San Francisco in 1915 during the exposition. The members expressed a hearty sympathy in the matter. Mr. Cowell also discussed the possibility of an international conservation congress being held at the time of the fair and read several letters showing the world wide interest in the idea. Mr. W. P. Taylor and others discussed the matter. It was decided to have the President appoint a committee of three members to consider the matter and report at the October meeting. Adjourned.—TRACY I. STORER, Secretary.

OCTOBER—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 101, East Hall, University of California, Berkeley, California, on Thursday evening, October 23, 1913, at 8 p. m. President Carriger was in the chair with the following members present: Mesdames Allen and Grinnell, the Misses Atsatt and Wythe, and the Messrs. Bade, Bryant, Clarke, Dawson, Grinnell, Moran, Silliman, Storer, Trenor, Weed and Willett. Over twenty-five visitors were present. The program of the evening was first presented. Mr. W. Leon Dawson gave an illustrated account of some of the more interesting species of birds that he has encountered in his fieldwork in the interests of his "Birds of California."

The business of the meeting was then taken up. The minutes of the September meeting were read and approved and the minutes of the Southern Division for September were read. The names read at the last meeting were elected to membership. The following new applications were read: Miss Louise Le Bris, 2569 Clay St., San Francisco, proposed by J. Grinnell; Miss Olive Swezy, 533 Durant Ave., Berkeley, proposed by Tracy I. Storer; and Chas. H. Culp, Pacific Grove, proposed by O. P. Silliman. In addition the names presented at the Southern Division were read.

A communication from Mr. W. Leon Dawson stating the progress of the work on the "Birds of California" and making certain requests for aid and cooperation from the Club was read. The aid is requested on the following points: (1) knowledge of the little known species accredited to the State; (2) data as to the migrations of the various species in the State; (3) appointment of a committee or individual to visit the technical portions of the work. Mr. Dawson commented briefly on the contents of the letter. It was decided to use the columns of "THE CONDOR" to secure information regarding the little known species and regarding migrations. A motion was carried authorizing the President and Secretary of the Northern Division to act with the corresponding officers of the Southern Division as a committee in selecting one member from the Club at large to confer with Mr. Dawson.

The Committee consisting of W. P. Taylor, H. C. Bryant and Joseph Mailliard, appointed in accordance with a motion passed at the September meeting to look into the matter of a conservation congress in San Francisco in 1915, rendered its report, which was accepted.

There being no further business the meeting adjourned.—TRACY I. STORER, Secretary.

## INDEX TO VOLUME XV

## A

- Accipiter atricapillus striatulus*, 203  
*velox*, 229  
*Actitis macularius*, 22, 115, 139, 148, 203  
*Aechmophorus occidentalis*, 20, 116  
*Aegialitis nivosus*, 22, 117, 147, 150  
*Aeronautes melanoleucus*, 23  
*Agelaius phoeniceus californicus*, 116, 228  
*phoeniceus neutralis*, 23, 111, 113, 116  
*phoeniceus sonoriensis*, 113  
*tricolor*, 116  
*Aimophila ruficeps ruficeps*, 23, 188  
*ruficeps scotti*, 227  
Albatross, Laysan, 158  
*Aluco pratincola*, 22, 210  
*Amphispiza belli*, 23  
*bilineata deserticola*, 23, 111, 229  
*Anas platyrhynchos*, 176  
*Anhinga anhinga*, 182  
*Anthus rubescens*, 24  
*Aphelocoma insularis*, 91  
*sieberi arizonae*, 227  
*Aphriza virgata*, 5, 22  
*Aquila chrysaetos*, 119, 203  
*Archibuteo ferrugineus*, 92  
*Archilochus alexandri*, 43, 118  
*Ardea herodias herodias*, 21, 50, 91, 118, 210  
*herodias hyperonca*, 50  
*herodias oligista*, 50  
*Arenaria interpres morinella*, 22, 91  
*melanocephala*, 22  
*Arremonops rufivirgatus*, 183  
*Asio flammeus*, 121  
*wilsonianus*, 17, 182  
*Astragalinus psaltria hesperophilus*, 23  
*Astur atricapillus striatulus*, 129  
*Asyndesmus lewisi*, 119  
Auklet, Cassin, 20, 86, 88, 89, 93  
Avocet, 16, 117, 141, 142, 218

## B

- Bailey, B., some winter notes from the Bitter Root Valley, Montana, 94; some 1913 spring notes from the Bitter Root Valley, Montana, 184  
Bailey, H. H., review of his "the birds of Virginia," 233  
Bailey, V., review of his "life zones and crop zones of New Mexico," 232  
Baldpate, 21, 184  
Beal, F. E. L., review of his "food of our more important flycatchers," 46  
Beck, R. H., Communication—"Collecting in Peru," 187  
Bigglestone, H. C., review of his "a study of the nesting behavior of the Yellow Warbler (*Dendroica aestiva aestiva*)," 231

## Bittern, 157

- Least, 154, 156  
Blackbird, Bicolored, 50, 228  
Brewer, 121, 157  
Red-winged, 94, 113  
Tri-colored, 116, 157  
Yellow-headed, 113, 157  
Bluebird, Eastern, 184  
Mountain, 85, 199, 203  
Western, 119, 156  
*Bombycilla cedrorum*, 129, 188  
Bowles, J. H., white-throated sparrow in western Washington, 41  
*Brachyrhamphus hypoleucus*, 20, 89, 208  
Brant, Black, 21  
*Branta nigricans*, 21  
Brooks, Allan, unusual records for California, 182  
Brown, H., obituary notice of, 186; photo of, 186  
Bryant, H. C., review of Beal's "food of our more important flycatchers," 46; review of Hammond's "an investigation concerning the food of certain birds," 48; review of his "birds in relation to a grasshopper outbreak in California," 49; the results of some miscellaneous stomach examinations, 92; review of McAtee's "index to papers relating to the food of birds in the publications of the United States Department of Agriculture, 1885-1911," 132; review of Henderson's "the practical value of birds," 159; review of "fifty common birds of farm and orchard," 189; review of H. C. Bigglestone's "a study of the nesting behavior of the yellow warbler (*Dendroica aestiva aestiva*)," 231  
*Bubo virginianus arcticus*, 41  
*virginianus pacificus*, 92  
Bunting, Lazuli, 23, 118, 157  
Snow, 226  
Bush-tit, California, 92  
Coast, 156  
*Buteo borealis calurus*, 201, 203  
*Butorides virescens anthonyi*, 118

## C

- Calamospiza melanocorys*, 183  
*Callipepla squamata*, 227  
*squamata castanogastri*, 182  
*Calypte anna*, 23, 129, 156, 184  
*costae*, 23  
*Canis ochropus*, 119  
Caracara, Guadalupe, 228, 229  
*Cardinalis cardinalis cardinalis*, 121  
*Carpodacus cassinii*, 84, 203  
*mexicanus clementis*, 23, 91  
*mexicanus frontalis*, 23, 119, 184, 200

- Cathartes aura septentrionalis, 22, 218  
 Catoptrophorus semipalmatus, 145, 146  
     semipalmatus inornatus, 145, 146  
 Cedar-bird, 155  
 Centurus carolinus, 120  
 Cephus columba, 89  
 Certhia familiaris zelotes, 85, 203  
 Ceryle alcyon, 22, 202  
 Chaetura vauxi, 188  
 Chamaea fasciata, 179  
 Chambers, W. L., more band-tailed pigeon  
     notes, 41  
 Charadrius apricarius, 197  
     dominicus dominicus, 147, 150, 197  
     pluvialis, 197  
 Chat, Long-tailed, 119  
 Chauleasmus streperus, 21, 184  
 Chen caerulescens, 43  
     hyperboreus hyperboreus, 43  
 Chickadee, Mountain, 85, 198, 200, 203  
 Chondestes grammacus strigatus, 119  
 Chordeiles acutipennis texensis, 184  
     virginianus hesperis, 92, 203  
 Cinclus mexicanus unicolor, 203  
 Circus hudsonius, 22, 99  
 Clarke, F. C., preliminary report upon the  
     disease occurring among the ducks of  
     the southern San Joaquin Valley dur-  
     ing the fall of 1913, 214  
 Clay, C. I., artificial hatching of a Cassin  
     auklet, 93; a winter home of the Anna  
     hummingbird, 184  
 Coccythraustes vespertinus montanus, 84  
 Colaptes auratus luteus, 120  
     cafer collaris, 91, 119, 182, 203  
 Columba fasciata, 26, 41, 94, 129, 151, 227  
 Colymbus nigricollis californicus, 20, 41, 119  
 Cooke, W. W., the wild turkeys of Colorado,  
     104  
 Cooper Ornithological Club, directory of  
     members of the, 160; minutes of meet-  
     ings, 51, 97, 133, 160, 189, 236; report of  
     business manager of the, 95  
 Coot, 21, 119, 154, 156, 218, 220  
 Cormorant, Baird, 21, 87, 90  
     Brandt, 20, 86, 88, 90, 156, 208, 209, 210  
     Farallon, 20, 90, 116, 120, 156, 207, 208,  
     209, 217, 228  
 Corvus brachyrhynchos brachyrhynchos, 182  
     corax sinuatus, 23, 91  
 Coyote, Valley, 119  
 Crane, Sandhill, 218  
 Creeper, Sierra, 81, 85, 203  
 Crossbill, Sierra, 203  
 Curlew, Hudsonian, 22, 155, 156  
     Long-billed, 116, 143, 148  
 Cyanocitta stelleri frontalis, 84, 203  
 Cyanolaemus clemenciae, 41  
 Cyrtornyx montezumae mearnsi, 227
- D**
- Dafilu acuta, 217  
 Daggett, F. S., another instance of cannibalism  
     in the spotted owl, 40  
 Darter, 182  
 Dawson, W. L., a glimpse of surf-birds, 5;  
     an unfortunate dove, 42; the nesting  
     of the prairie falcon in San Luis Obispo  
     County, 55; *Allan Brooks*—an appre-  
     ciation, 69; the all-day test at Santa  
     Barbara, 153; Scott oriole (*Icterus*  
     *parisorum*) at Santa Barbara, 158; a  
     mnemonic device for color workers  
     based on a consideration of Ridgway's  
     "color standards and nomenclature,"  
     211; a practical system of color desig-  
     nation, a partial critique of Ridgway's  
     "color standards and nomenclature,"  
     212; identification by camera, 204; re-  
     view of *The Auk* for July, 1913, 234;  
     review of *Bird-Lore* for September-  
     October, 1913, 234.  
 Dendragapus obscurus sierrae, 203  
 Dendrocygna bicolor, 21, 118  
 Dendroica aestiva brewsteri, 84, 202, 203  
     auduboni, 24, 85, 113, 203  
     coronata, 131  
     coronata hooveri, 131  
     nigrescens, 111  
     occidentalis, 188  
 Diomedea immutabilis, 158  
 Dipper, American, 203  
 Directory of members of the Cooper Orni-  
     thological Club, 160  
 Dixon, J., communication from, collecting in  
     Alaska, 159  
 Dove, Mourning, 42, 94, 183  
     Western Mourning, 22, 91, 156  
 Dowitcher, Long-billed, 75, 157, 205  
 Dryobates nuttalli, 119  
     pubescens medianus, 120  
     pubescens turati, 119  
     villosus hyloscopus, 119, 203  
     villosus villosus, 120  
 Duck, Fulvous Tree, 21, 118, 120  
     Lesser Scaup, 21  
     Ruddy, 21, 118, 120, 154, 156  
 Dunlin, 139, 146, 194, 195
- E**
- Eagle, Bald, 22, 86, 91  
     Golden, 119, 203  
 Ectopistes migratorius, 26  
 Editorial Notes and News, 44, 95, 130, 159,  
     185, 230  
 Egret, 118, 129  
     Snowy, 155, 156  
 Elanus leucurus, 184  
 Empidonax difficilis difficilis, 23, 91  
     griseus, 110, 229  
     trailli trailli, 83, 119, 202  
     wrighti, 203  
 Erismatura jamaicensis, 21, 118  
 Euphagus cyanocephalus, 183

## F

- Falco mexicanus*, 41, 55  
     *peregrinus anatum*, 22, 91  
     *sparverius phalaena*, 22  
     *sparverius sparverius*, 91  
*Falcon*, *Prairie*, 55, 157  
 Figgins, J. D., the status of the Gambel quail in Colorado, 158  
*Finch*, *California Purple*, 157  
     *Cassin Purple*, 84, 137, 203  
     *House*, 23, 154, 200, 201  
     *Rosy*, 76  
     *San Clemente House*, 23, 91  
     *Sierra Nevada Rosy*, 77  
*Flicker*, *Red-shafted*, 91, 119, 156, 182, 203  
*Florida caerulea*, 188  
*Flycatcher*, *Ash-throated*, 157  
     *Gray*, 110, 229  
     *Hammond*, 86  
     *Olive-sided*, 82, 83, 156, 203  
     *Scissor-tailed*, 182  
     *Traill*, 83, 119, 202  
     *Western*, 23, 91, 156  
     *Wright*, 157, 203  
 Forbush, E. H., review of his "a history of the game birds, wild-fowl and shore birds of Massachusetts and adjacent states," 47  
 Fox, V. F., some rare transients of the Corral de Quati Ranch, 129  
 Fry, W., review of his "check-list of the birds of the Sequoia and General Grant National Parks," 188  
*Fulica americana*, 21, 119, 218  
*Fulmar*, *Pacific*, 20  
*Fulmarus glacialis glupischa*, 20

## G

- Gadwall*, 21  
*Gallinago delicata*, 21, 144, 145  
     *gallinago*, 139, 144, 194  
*Gavia immer*, 20  
     *lumme*, 41  
     *pacifica*, 20  
*Geococcyx californianus*, 92  
*Geothlypis trichas arizela*, 24  
 Gilbert, C. H., a northern winter station for the band-tailed pigeon, 94  
*Gnatcatcher*, *Black-tailed*, 24  
     *Western*, 24, 111, 157  
*Godwit*, *Black-tailed*, 145, 146, 195  
     *Hudsonian*, 146  
     *Marbled*, 21  
*Goldfinch*, *Green-backed*, 23, 157  
     *Lawrence*, 157  
     *Willow*, 157  
*Goose*, *Blue*, 43  
*Goshawk*, *Western*, 129, 203  
*Grackle*, *Great-tailed*, 183  
*Grebe*, *Eared*, 20, 119, 155, 156  
     *Pied-billed*, 156  
     *Western*, 20, 116, 155, 156, 157

- Grey*, H., *Harris hawk* in California, 128;  
     *American egret* in San Diego County, 129;  
     *western goshawk* in California, 129  
 Grinnell, J., the outlook for conserving the band-tailed pigeon as a game bird of California, 25; review of Forbush's "a history of the game birds, wild fowl and shore-birds of Massachusetts and adjoining states," 47; review of Stone's "the phylogenetic value of color characters in birds," 47; review of Miller's "contributions to avian palaeontology from the Pacific Coast of North America," 48; review of Bryant's "birds in relation to a grasshopper outbreak in California," 49; *Leucosticte tephrocotis dawsoni*—a new race of rosy finch from the Sierra Nevada, 76; call-notes and mannerisms of the wren-tit, 178; review of Fry's "check-list of the birds of the Sequoia and General Grant National Parks," 188; review of Bailey's "the birds of Virginia," 233; review of the "catalogue of a collection of books on ornithology in the library of John E. Thayer," by E. Thayer and V. Keyes, 233  
*Grosbeak*, *Black-headed*, 92, 94, 119, 203  
     *California Pine*, 86, 203  
     *Pacific Black-headed*, 157  
     *Rocky Mountain Pine*, 106  
     *Western Blue*, 116, 129  
     *Western Evening*, 84, 137, 203  
*Grouse*, *Sharp-tailed*, 121  
     *Sierra*, 198, 201, 203  
*Grus mexicana*, 182, 208  
*Guillemot*, *Pigeon*, 88, 89  
*Guiraca caerulea lazula*, 116, 129  
*Gull*, *Bonaparte*, 20, 80, 117, 156, 157  
     *California*, 20, 117, 157  
     *Glaucous*, 154, 156, 157  
     *Heermann*, 20, 89, 209  
     *Herring*, 20, 156, 157  
     *Sabine*, 227  
     *Western*, 20, 89, 154, 156, 208

## H

- Haematopus bachmani*, 22, 91, 149, 210  
     *frazari*, 22, 210  
     *ostralegus*, 149, 151, 198  
     *palliatius*, 149, 151  
*Haliaeetus leucocephalus leucocephalus*, 22, 91  
 Hammond, J., review of his "an investigation concerning the food of certain birds," 48  
 Hanford, F. S., *Sierra storms and birds*, 137  
*Hawk*, *Cooper*, 157  
     *Desert Sparrow*, 22  
     *Duck*, 22, 91  
     *Ferruginous Rough-legged*, 92  
     *Harris*, 128  
     *Marsh*, 22, 99, 121

- Hawk, Red-bellied, 228  
 Sharp-shinned, 157, 229  
 Sparrow, 91, 156  
 Western Red-tailed, 154, 156, 199, 201
- Hen, Prairie, 121
- Henderson, J., concealing and revealing coloration of animals, 8; review of McAtee's "the experimental method of testing the efficiency of warning and cryptic coloration in protecting animals from their enemies," 47; review of his "the practical value of birds," 159
- Herodias egretta, 118, 129
- Heron, Anthony Green, 118, 157  
 Black-crowned Night, 117, 118, 156  
 Great Blue, 21, 50, 91, 118, 210  
 Hyperonca Blue, 155, 156  
 Snowy, 157
- Hersey, L. J., Gambel quail (*Lophortyx gambeli*) in Colorado, 93
- Hesperiphona vespertina montana, 203
- Heteractitis incanus, 21
- Himantopus avocetta, 194  
 melanopterus, 194  
 mexicanus, 117, 142, 144, 147, 218
- Hirundo erythrogastra, 23, 91
- Howell, A. B. [with Lamb, C.], notes from Buena Vista Lake and Fort Tejon, 115
- Huey, L. M., with the band-tailed pigeon in San Diego County, 151; nesting notes from San Diego County, 228; spotted owls in San Diego County, 229
- Hummingbird, Allen, 154, 156, 184, 205  
 Anna, 23, 129, 184  
 Black-chinned, 43, 118, 156  
 Blue-throated, 41  
 Calliope, 203, 232  
 Costa, 23  
 Rufous, 157
- Hydrochelidon nigra surinamensis, 112, 118
- Hylocichla fuscescens salicicola, 229  
 guttata sequoiensis, 115, 203  
 usulata usulata, 85, 203

## I

- Ibis, White-faced Glossy, 118
- Icteria virens longicauda, 119
- Icterus cucullatus nelsoni, 227  
 melanocephalus auduboni, 183  
 parisorum, 119, 158, 232
- Ingersoll, A. M., great destruction of birds' eggs and nestlings in the Sierra Nevada, 81
- Iridoprocne bicolor, 23, 84, 113, 203

## J

- Jaeger, Parasitic, 157
- Jay, Arizona, 227  
 Blue-fronted, 84, 157, 199, 203  
 California, 156  
 Santa Cruz Island, 91

- Jewett, S. G., two stragglers on the Oregon coast, 226; three new birds from eastern Oregon, 229
- Junco hyemalis, 131  
 hyemalis mearnsi, 111  
 oreganus, 131  
 oreganus shufeldti, 111, 188  
 oreganus thurberi, 84, 115, 119, 203
- Junco, Pink-sided, 111  
 Shufeldti, 111  
 Sierra, 84, 115, 199, 200, 203  
 Thurber, 119, 138

## K

- Kaeding, H. B., communication from, 96; obituary notice of, 159, 191
- Keezel, C. C., review of her "bird study note book", 232
- Kennedy, C. H., a nest of the dusky horned lark, 135; mourning dove in the Lower Yakima Valley, Washington, 183
- Keyes, V. [and Thayer, E.], review of their "catalogue of a collection of books on ornithology in the library of John E. Thayer", 233
- Killdeer, 50, 94, 117, 147, 150, 156, 157, 205, 218
- Kingbird, Arkansas, 46, 110, 116, 119  
 Cassin, 23, 110, 154, 156  
 Western, 154, 156
- Kingfisher, Belted, 22, 154, 156, 202
- Kinglet, Ruby-crowned, 85, 113, 199, 200, 203  
 Western Golden-crowned, 85
- Kite, White-tailed, 157, 184
- Knot, 157

## L

- Lacey, John Fletcher, obituary notice of, 230
- Lamb, C. [with Howell, A. B.], notes from Buena Vista Lake and Fort Tejon, 115
- Lanius ludovicianus excubitorides, 232  
 ludovicianus gambeli, 18
- Lanivireo solitarius cassini, 118  
 solitarius plumbeus, 111
- Lapwing, 149, 150, 197
- Lark, California Horned, 156  
 Dusky Horned, 135  
 Island Horned, 91
- Larus argentatus, 20  
 californicus, 20, 117  
 heermanni, 20, 89, 209  
 occidentalis, 20, 89, 208  
 philadelphia, 20, 117  
 hyperboreus, 154
- Leucosticte, Gray-crowned, 203
- Leucosticte tephrocotis dawsoni, 76  
 tephrocotis tephrocotis, 77, 131, 203
- Limosa fedoa, 21  
 haemastica, 146  
 limosa, 145, 146, 195
- Linnet, 119, 184  
 California, 157

*Lobipes lobatus*, 193, 218  
*Loon*, 20, 157  
     *Pacific*, 20, 157  
*Lophortyx californica*, 158  
     *californica vallicola*, 17, 22  
     *gambeli*, 93, 158  
*Loxia curvirostra bendirei*, 203  
*Lunda cirrhata*, 88

## M

*Machetes pugnax*, 141, 148, 196  
 Mailliard, J., the black-chinned hummingbird in Marin County, California, 43; the Stephens fox sparrow in Marin County, California, once more, 93; Henry Barroilhet Kaeding, 191; some curious nesting places of the Allen hummingbird on the Rancho San Geronimo, 205; dry season notes, 228  
 Mallard, 94, 121, 176  
*Mareca americana*, 21, 184  
*Marila affinis*, 21  
     *americana*, 120  
 Martin, Western, 119, 156  
 Massey, H., notes on the eggs of the North American Limicolae, referring principally to the accidental visitors, 193  
 McAtee, W. L., review of his "the experimental method of testing the efficiency of warning and cryptic coloration in protecting animals from their enemies", 47; review of his "index to papers relating to the food of birds in the publications of the United States Department of Agriculture, 1885-1911," 132  
 Meadowlark, Western, 23, 91, 93, 94, 157  
*Megaquiscalus major macrourus*, 183  
*Melanerpes formicivorus formicivorus*, 227  
     *formicivorus bairdi*, 119  
*Meleagris gallopavo*, 104  
     *gallopavo merriami*, 104, 105  
     *gallopavo mexicana*, 104  
     *gallopavo silvestris*, 105  
*Melopelia asiatica trudeaui*, 182  
*Melospiza lincolni lincolni*, 203  
     *melodia cooperi*, 23  
     *melodia graminea*, 91  
     *melodia inexpectata*, 131  
     *melodia montana*, 203  
 Merganser, Red-breasted, 21, 156, 157  
 Mergus serrator, 21  
 Miller, L., a specimen of Bendire thrasher in the San Diegan region, 41; review of his "contributions to avian Palaeontology from the Pacific Coast of North America," 48; late fall occurrence of the black-headed grosbeak, 92  
*Mimus polyglottos leucopterus*, 24  
 Minutes of Cooper Club Meetings, 51, 97, 133, 160, 189, 236  
 Mockingbird, Western, 24, 156, 228

Mudhen, 218  
 Murie, O. J., unusual nesting site of the mallard, 176  
 Murre, California, 88, 89  
 Murrelet, Xantus, 20, 87, 89, 208  
*Muscivora forficata*, 182  
*Myadestes townsendi*, 94  
 Myers, H. W., early arrival of the black-headed grosbeak, 94  
*Myiochanes richardsoni richardsoni*, 23, 83, 203

## N

*Nannus hiemalis hiemalis*, 121  
 Nelson, E. W., obituary of Herbert Brown, 186  
*Nettion carolinense*, 118, 217  
*Nighthawk, Pacific*, 82, 92, 203  
     *Texas*, 184  
*Nucifraga columbiana*, 203  
*Numenius americanus*, 116, 143, 148, 150  
     *hudsonicus*, 22  
     *phaeopus*, 143, 148, 196  
*Nutcracker, Clarke*, 86, 203  
*Nuthatch, Pigmy*, 198  
     *Red-breasted*, 203  
     *Slender-billed*, 85, 119, 203  
*Nuttallornis borealis*, 83, 203  
*Nycticorax nycticorax naevius*, 117

## O

Oberholser, H. C., review of his "a revision of the forms of the great blue heron (*Ardea herodias* Linnaeus)," 50; review of Ridgway's "color standards and color nomenclature," 131  
*Oceanodroma homochroa*, 89, 229  
     *leucorhoa*, 158  
*Ochthodromus wilsonius*, 147, 150  
*Oidemia perspicillata*, 21, 41  
*Oporornis tolmiei*, 85  
*Oreortyx picta plumifera*, 83, 203  
*Oreoscoptes montanus*, 183  
*Oreospiza chlorura*, 84, 203  
*Oriole, Arizona Hooded*, 156, 157, 227, 228  
     *Bullock*, 50  
     *Scott*, 119, 158, 232  
*Osprey, American*, 22, 210  
*Otocoris alpestris insularis*, 91  
     *alpestris merrilli*, 135  
*Otus asio bendirei*, 156  
     *asio mcalli*, 182  
*Owl, Barn*, 22, 157, 210  
     *Burrowing*, 18, 22, 157  
     *California Pigmy*, 157  
     *California Screech*, 156  
     *Long-eared*, 17  
     *Pacific Horned*, 92, 154, 156, 228  
     *Short-eared*, 121  
     *Spotted*, 40, 229  
*Oxyechus vociferus*, 117, 147, 150, 218

- Oyster-catcher, 149, 150, 198  
 Black, 22, 87, 91, 149, 210  
 European, 149, 151  
 Frazer, 22, 210

## P

- Palmer, T. S., obituary notice of Major John  
 Fletcher Lacey, 230  
*Pandion haliaetus carolinensis*, 22, 210  
*Parabuteo unicinctus harrisi*, 128  
*Passerculus beldingi*, 23  
     *sandwichensis bryanti*, 182  
*Passerella iliaca altivagans*, 131  
     *iliaca megarhyncha*, 84, 203  
     *stephensi*, 93  
*Passerherbulus lecontei*, 183  
*Passerina amoena*, 23, 118  
*Pelecanus californicus*, 21, 90, 117, 210, 228  
     *erythrorhynchos*, 116, 217, 228  
*Pelican, California Brown*, 21, 86, 90, 155, 156,  
     157, 209, 210, 228  
     White, 116, 217, 228  
*Pelidna alpina alpina*, 139, 146, 195  
*Penthestes gambeli gambeli*, 85, 203  
*Petrel, Ashy*, 88, 89, 229  
     Black, 87, 90  
     Leach, 158  
     Socorro, 87, 90  
*Petrochelidon lunifrons lunifrons*, 23  
*Peucaea cassini*, 183  
*Pewee, Western Wood*, 23, 81, 83, 156, 199,  
     200, 203  
*Phainopepla*, 154, 156  
*Phalacrocorax auritus albociliatus*, 20, 90, 116,  
     209, 217, 228  
     *pelagicus resplendens*, 21, 90  
     *penicillatus*, 20, 90, 210  
*Phalaenoptilus nuttalli nitidus*, 182  
*Phalarope, Grey*, 193  
     Northern, 156, 157, 193, 205, 218  
     Red, 21, 139, 140, 142, 193  
     Red-necked, 193  
     Wilson, 113, 139, 140, 142, 157, 184, 193,  
     200  
*Phalaropus fulicarius*, 21, 139, 142, 193  
     *hyperboreus*, 193  
     *tricolor*, 193  
*Philohela minor*, 141, 144  
*Phoebe, Black*, 23, 91, 156  
     Eastern, 182  
     Say, 23  
*Pierce, W. M.*, nesting of the band-tailed  
     pigeon, 227  
*Pigeon, Band-tailed*, 25, 41, 94, 129, 151, 227  
     *Passenger*, 26  
*Pinicola californica*, 203  
     *enucleator californica*, 188  
     *enucleator montana*, 106  
*Pintail*, 118, 155, 156, 157, 217, 220  
*Pipilo crissalis crissalis*, 119  
     *crissalis senicula*, 23  
     *fuscus mesoleucus*, 227  
*Pipilo maculatus*, 167  
     *maculatus arcticus*, 173, 175  
     *maculatus clementae*, 91, 168, 169, 172, 175  
     *maculatus curtatus*, 168, 169, 173, 175  
     *maculatus falcifer*, 168, 169, 171, 175  
     *maculatus falcinellus*, 168, 169, 172, 175  
     *maculatus megalonyx*, 168, 169, 170, 175  
     *maculatus montanus*, 188  
     *maculatus oregonus*, 172, 175  
*Pipit*, 24  
     American, 157  
*Piranga ludoviciana*, 23, 84, 203  
     *rubra cooperi*, 232  
*Pisobia bairdi*, 184  
     *minutilla*, 21  
*Planesticus migratorius caurinus*, 131  
     *migratorius migratorius*, 131  
     *migratorius propinquus*, 19, 85, 115, 131,  
     203  
*Plectrophenax nivalis nivalis*, 226  
*Plegadis guarauna*, 118  
*Plover, American Golden*, 197  
     Black-bellied, 22, 155, 156  
     European Golden, 197  
     Golden, 147, 150  
     Mountain, 147, 150  
     Semipalmated, 155, 156  
     Snowy, 22, 117, 147, 150, 155, 156, 157  
     Wilson, 147, 150  
*Podasocys montanus*, 147, 150  
*Poliophtila caerulea obscura*, 24, 111  
     *californica*, 24  
*Polyborus lutosus*, 229  
*Poorwill, Dusky*, 157  
*Porzana carolina*, 21, 112, 128  
     *noveboracensis*, 22  
*Progne subis hesperia*, 119  
*Psaltiriparus minimus californicus*, 24, 92  
*Ptarmigan, Rock*, 159  
     Willow, 159  
*Ptychoramphus aleuticus*, 20, 89, 93  
*Puffin, Tufted*, 87, 88  
*Puffinus creatopus*, 89  
     *griseus*, 20, 89  
     *opisthomelas*, 20  
*Pyrrhuloxia sinuata texana*, 183  
*Pyrrhuloxia, Texas*, 183

## Q

- Quail, California*, 158  
     Chestnut-bellied Scaled, 182  
     Gambel, 93, 158  
     Mearns, 227  
     Mountain, 203  
     Plumed, 83  
     Scaled, 227  
     Valley, 17, 22, 156  
*Querquedula cyanoptera*, 21, 217

## R

- Rail, Light-footed*, 157  
     Yellow, 92

- Raven, American, 23  
Western, 91
- Ray, M. S., some further notes from the Tahoe region, 111; some further notes on Sierran field work, 198
- Recurvirostra americana, 16, 117, 141, 142, 218
- Redhead, 120
- Redshank, 141, 146, 195
- Redtail, Western, 203
- Red-wing, San Diego, 23, 111, 157
- Regulus calendula calendula, 85, 113, 203  
satrapa olivaceus, 85
- Ridgway, R., review of his "color standards and color nomenclature," 131
- Riley, J. H., review of his "birds collected or observed on the expedition of the Alpine Club of Canada to Jasper Park, Yellowhead Pass, and Mount Robson region," 130
- Roadrunner, 92, 157
- Robin, Western, 19, 85, 115, 199, 200, 203
- Ruff, 141, 148, 196
- Rust, H. J., birds new to the vicinity of Lake Coeur d'Alene, Kootenai County, Idaho, 41
- S**
- Salpinctes obsoletus obsoletus, 24, 85, 92, 210, 226
- Sanderling, 155, 156
- Sandpiper, Baird, 68, 157, 184  
Least, 21, 156  
Red-backed, 156  
Spotted, 22, 115, 139, 148, 155, 156, 203  
Western, 156
- Sapsucker, Red-breasted, 83  
Sierra, 203  
Williamson, 203
- Saunders, A. A., a study of the nesting of the marsh hawk, 99; some notes on the nesting of the short-eared owl, 121; an unusual nest of the sora rail, 128
- Sayornis nigricans, 23, 91  
phoebe, 182  
sayus, 23
- Scelopax gallinago, 194  
rusticola, 144, 194
- Scoter, Surf, 21, 156  
White-winged, 156
- Selasphorus alleni, 184, 205
- Shearwater, Black-vented, 20  
Pink-footed, 89  
Sooty, 20, 89
- Shoveller, 21, 118, 156, 157, 217
- Shrike, California, 18, 50  
White-rumped, 232
- Shufeldt, R. W., an introduction to the study of the eggs of the North American Limicolae, 138
- Sialia currucoides, 85, 203  
mexicana anabelae, 188  
mexicana occidentalis, 119  
sialis, 184
- Siskin, Pine, 82, 129, 203
- Sitta canadensis, 203  
carolinensis aculeata, 85, 119, 203
- Smith, Austin Paul, notes and records from Brooks County, Texas, 182
- Snipe, European, 139, 144, 194  
Wilson, 21, 94, 144, 145
- Snyder, G. K. [with Wright, H.], birds observed in the summer of 1912 among the Santa Barbara Islands, 86
- Solitaire, Townsend, 94
- Sora, 21, 112, 128, 154, 156
- Sparrow, Belding, 23, 155, 157  
Bell, 23  
Brewer, 111  
Bryant Marsh, 182  
Clay-colored, 121  
Desert, 23, 111, 229  
English, 154, 157  
Gambel, 23, 111  
Leconte, 183  
Lincoln, 203  
Mountain Song, 201, 203  
Nuttall, 41  
Rufous-crowned, 23, 155, 157  
San Diego Song, 23, 157  
Santa Barbara Song, 91  
Scott, 227  
Stephens Fox, 93  
Thick-billed Fox, 84, 201, 203  
Western Chipping, 23, 83, 157, 203  
Western Field, 183  
Western Grasshopper, 155, 157  
Western Lark, 119, 157  
Western Savannah, 157  
White-crowned, 83, 111, 137, 198, 203  
White-throated, 41
- Spatula clypeata, 21, 118, 217
- Speotyto cunicularia hypogaea, 18, 22
- Sphyrapicus thyroideus, 203  
varius daggetti, 83, 203
- Spinus pinus, 129, 203
- Spizella breweri, 111  
passerina arizonae, 23, 83, 203  
pusilla arenacea, 183
- Spoonbill, 217, 220, 224
- Sprig, 217
- Squatarola squatarola, 22
- Steganopus tricolor, 113, 139, 142, 184, 193, 200
- Stellula calliope, 203, 232
- Stephens, F., early nesting of the band-tailed pigeon, 129; nighthawk drinking, 184
- Sterna caspia, 118  
forsteri, 118  
maxima, 20
- Stilt, Black-necked, 117, 142, 144, 147, 218
- Stone, W., review of his "the phylogenetic value of color characters in birds," 47
- Strix occidentalis, 40, 229
- Sturnella neglecta, 23, 50, 91, 93
- Surf-bird, 5, 22, 157
- Swallow, Bank, 156  
Barn, 23, 91, 156

- Swallow, Cliff, 14, 23, 154, 156  
 Northern Violet-green, 24, 82, 119, 154, 156  
 Rough-winged, 156  
 Tree, 23, 84, 113, 203

Swarth, H. S., the supposed occurrence of the blue goose in California, 43; review of Oberholser's "a revision of the forms of the great blue heron (*Ardea herodias* Linnaeus)," 50; *William Leon Dawson*—a biography, 62; review of Riley's "birds collected or observed on the expedition of the Alpine Club of Canada to Jasper Park, Yellowhead Pass, and Mount Robson region," 130; a revision of the California forms of *Pipilo maculatus* Swainson, with description of a new subspecies, 167; note on the Guadalupe caracara, 228; review of Todd's "a revision of the genus *Chaemepelia*," 231; review of Bailey's "life zones and crop zones of New Mexico," 232

- Swift, Vaux, 157  
 White-throated, 23, 154, 156

## T

- Tachycineta bicolor, 198  
 thalassina lepida, 24, 119  
 Tanager, Cooper, 232  
 Western, 23, 82, 84, 157, 203  
 Tattler, Wandering, 21, 157  
 Taylor, W. P., no-sale of American-killed wild game, 42; report of progress in conservation, 45; synopsis of the recent campaign for the conservation of wild life in California, 125  
 Teal, Cinnamon, 21, 154, 156, 217  
 Green-winged, 118, 157, 217  
 Tern, Black, 112, 118  
 Caspian, 118  
 Forster, 118, 155, 156, 157  
 Royal, 20  
 Thayer, E. [and Keyes, V.], review of their "catalogue of a collection of books on ornithology in the library of John E. Thayer," 233  
 Thrasher, Bendire, 41  
 California, 24  
 Palmer, 41  
 Pasadena, 156  
 Thrush, Russet-backed, 85, 156, 203  
 Sierra Hermit, 86, 115, 200, 203  
 Willow, 229  
 Thyomanes bewicki nesophilus, 92  
 Thyothorus ludovicianus, 120  
 Titmouse, Plain, 156  
 Todd, W. E. C., review of his "a revision of the genus *Chaemepelia*," 231  
 Totanus calidris, 141, 146, 195  
 flavipes, 195, 204

- Totanus melanoleucus, 21, 195, 196  
 pugnax, 196  
 totanus, 195

- Towhee, Anthony, 23, 154, 157  
 California, 119  
 Canyon, 227  
 Green-tailed, 84, 203  
 Nevada, 173  
 Oregon, 172  
 Sacramento, 172  
 San Clemente, 91, 172  
 San Diego, 154  
 San Francisco, 171  
 Spotted, 167  
 Spurred, 157, 170

- Toxostoma bendirei, 41  
 curvirostre palmeri, 41  
 longirostre sennetti, 183  
 redivivum, 24

Treganza, Edward and A. O., the Rocky Mountain pine grosbeak in Utah, 106

- Tringa alpina, 195  
 Troglodytes aedon parkmani, 112, 119, 203  
 Turkey, Wild, 104

- Turnstone, Black, 7, 22, 156  
 Ruddy, 22, 91, 156

Tyler, J. G., notes on some Fresno County birds, 16; a note on the plumage of the linnet, 184

- Tyrannus verticalis, 110, 116  
 vociferans, 23, 110

## U

- Uria troille californica, 89

## V

- Vanellus cristatus, 197  
 vanellus, 149, 150, 197  
 Vermivora celata celata, 24, 111, 131  
 celata lutescens, 24  
 celata orestera, 131  
 celata sordida, 24, 92  
 rubricapilla gutturalis, 84  
 rubricapilla ruficapilla, 183  
 Vireo, Cassin, 118  
 Hutton, 156  
 Plumbeous, 111  
 Western Warbling, 84, 118, 156, 198, 203  
 Vireo griseus micrus, 183  
 Vireosylva gilva swainsoni, 84, 118, 203  
 Vulture, Turkey, 22, 156, 218

## W

- Warbler, Audubon, 24, 81, 85, 113, 199, 200, 203  
 Black-throated Gray, 111, 157  
 Calaveras, 81, 84, 157  
 California Yellow, 84, 156, 157, 203  
 Dusky, 24, 92

- Warbler, Golden Pileolated, 85, 157, 203  
 Hermit, 198  
 Lutescent, 24, 156  
 Macgillivray, 85  
 Myrtle, 131  
 Orange-crowned, 24, 111, 131  
 Pileolated, 156, 201  
 Yellow, 202
- Warren, E. R., swallows and bed-bugs, 14;  
 notes on some Mesa County, Colorado,  
 birds, 110
- Water-Turkey, 182
- Waxwing, Cedar, 129, 156
- Wetmore, A., notes on certain Kansas birds,  
 120
- Whimbrel, 143, 148, 150, 196
- Wilder, C. M., Anna hummer in Ferndale,  
 Humboldt County, California, 129
- Willard, F. C., some late nesting notes from  
 the Huachuca Mountains, Arizona, 41;  
 late nesting of certain birds in Arizona,  
 227; sharp-shinned hawk nesting in Ari-  
 zona, 229
- Willet, 145, 146  
 Western, 145, 146
- Willett, G., bird notes from the coast of north-  
 ern Lower California, 19; pelagic wan-  
 derers, 158; a correction, 184
- Wilsonia pusilla chryseola, 85, 203  
 pusilla pileolata, 131  
 pusilla pusilla, 131
- Woodcock, American, 141, 144  
 European, 144, 194
- Woodpecker, Ant-eating, 227  
 Cabanis, 119, 203  
 California, 119, 156  
 Lewis, 119  
 Nuttall, 119, 154, 156  
 Willow, 119, 157  
 White-headed, 199, 203
- Wren, Dotted Canyon, 157  
 Long-billed Marsh, 94  
 Parkman, 112, 203  
 Rock, 24, 85, 92, 157, 210, 226
- Wren, San Diego, 156  
 Santa Cruz Island, 92  
 Tule, 157  
 Western House, 119, 156
- Wren-tit, 178, 179  
 Pallid, 24, 156
- Wright, H. W., *the white-tailed kite near Palo  
 Alto, 184; [with Snyder, G. K.], birds  
 observed in the summer of 1912 among  
 the Santa Barbara Islands, 86; the birds  
 of San Martin Island, Lower Cali-  
 fornia, 207; the Sabine Gull in the San-  
 ta Barbara Channel, 227; note on the  
 Ashy Petrel, 229*
- Wythe, M. W., review of C. C. Keezel's "bird  
 study note book," 232

## X

- Xanthocephalus xanthocephalus, 113  
 Xema sabini, 227  
 Xenopicus albolaryvatus, 203

## Y

- Yellow-legs, Greater, 21, 155, 156, 204, 205  
 Lesser, 204, 205  
 Yellowshank, 195  
 Greater, 196  
 Yellowthroat, Pacific, 24  
 Tule, 157

## Z

- Zamelodia ludoviciana, 188  
 melanocephala, 92, 94, 119  
 melanocephala capitalis, 203
- Zenaidura macroura, 183  
 macroura marginella, 22, 91
- Zonotrichia albicollis, 41  
 leucophrys gambeli, 23, 111, 131  
 leucophrys leucophrys, 83, 111, 131, 203  
 leucophrys nuttalli, 41





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